AEROSOL AGE

THE MAGAZINE OF PRESSURE PACKAGING

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CSMA Meets in Washington

Canadian MCSA Meets

Aerosol Product Development

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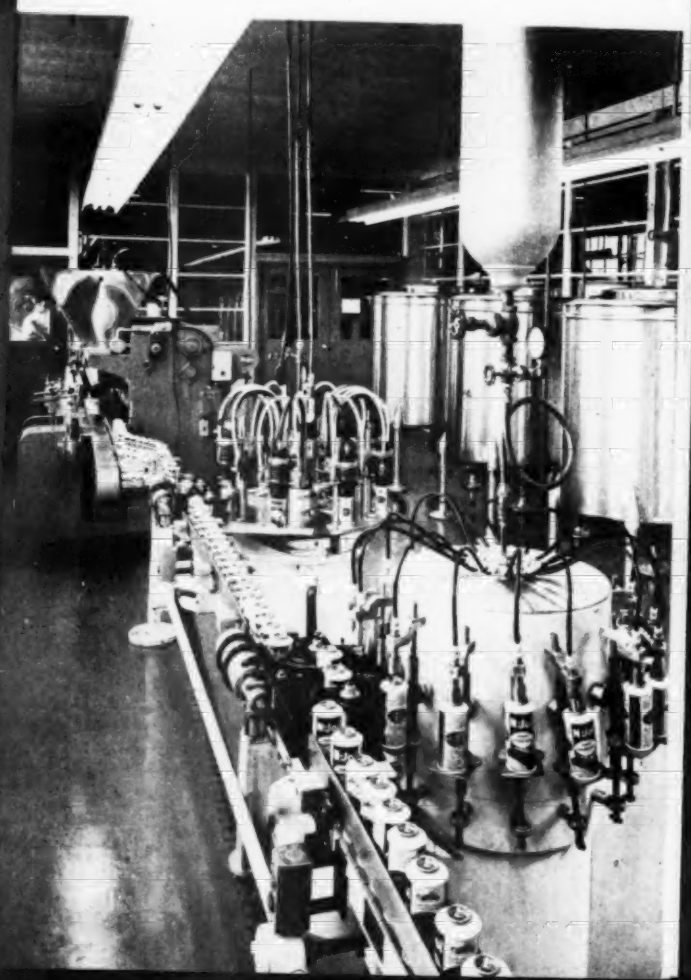
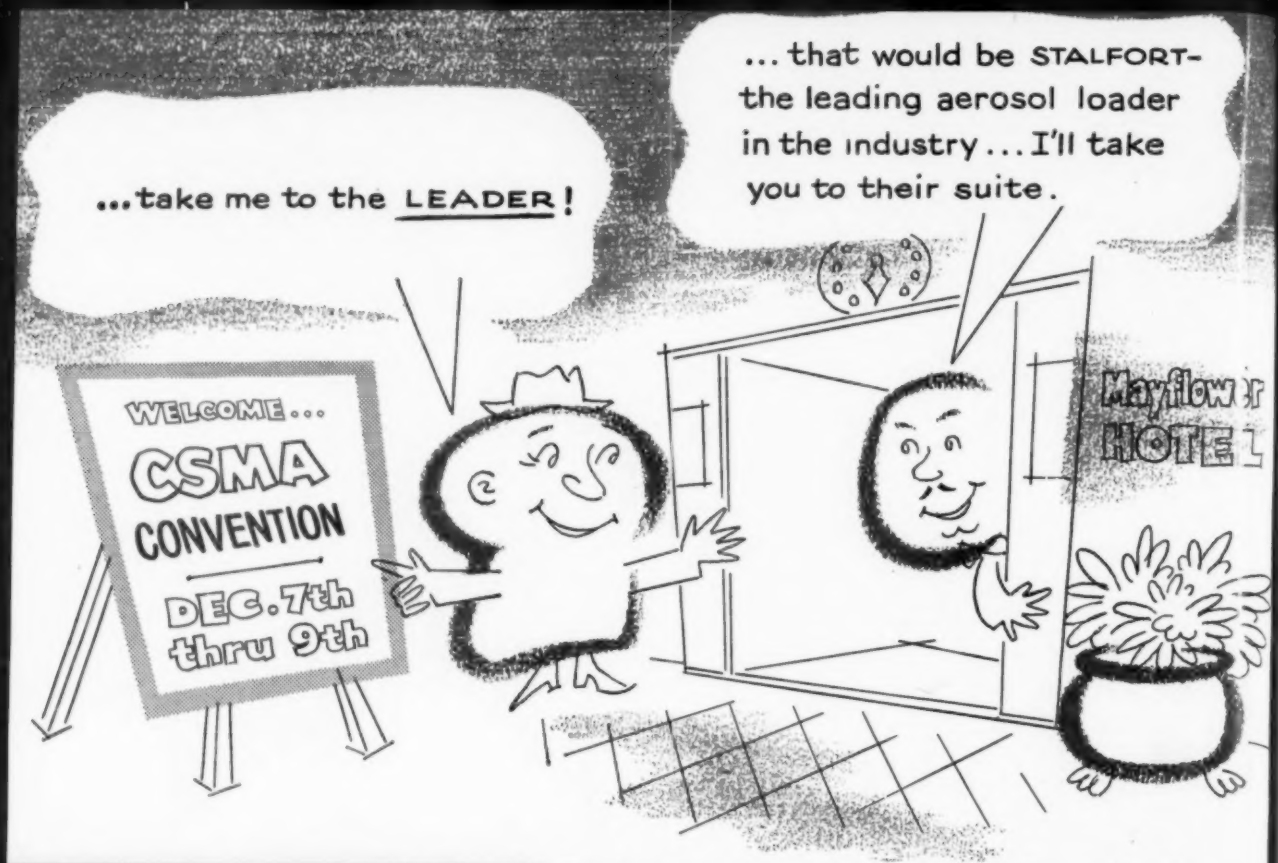


DECEMBER, 1959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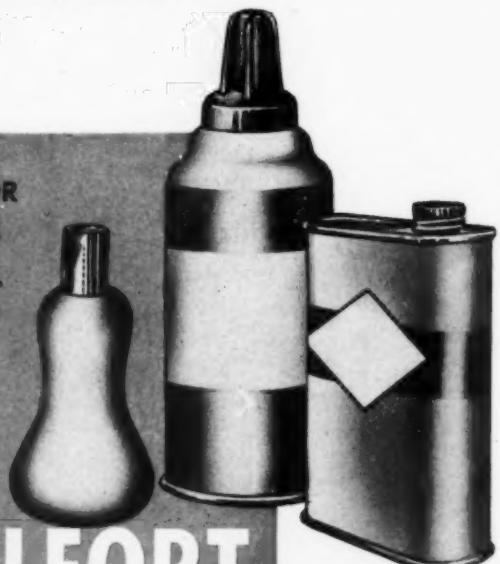

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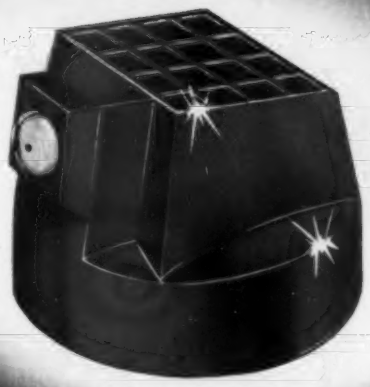

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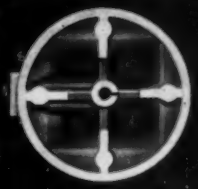

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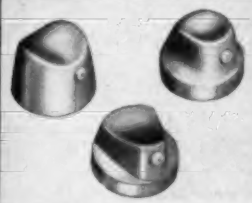

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- ☐ Have a representative bring samples at no obligation to me.
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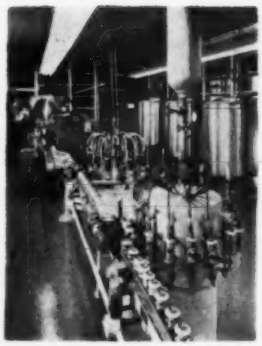

THIS MONTH'S COVER

John C. Stalfort, a leading aerosol custom filler, installs a new food and pharmaceutical line which is almost completely automatic. The cover photograph shows the rotary gasser (foreground) and crimper, with ingredient filler in the background. A story on this new line and the entire Stalfort plant begins on page 36.

DECEMBER, 1959 VOL. 4, No. 12

AEROSOL AGE

The magazine of pressure packaging

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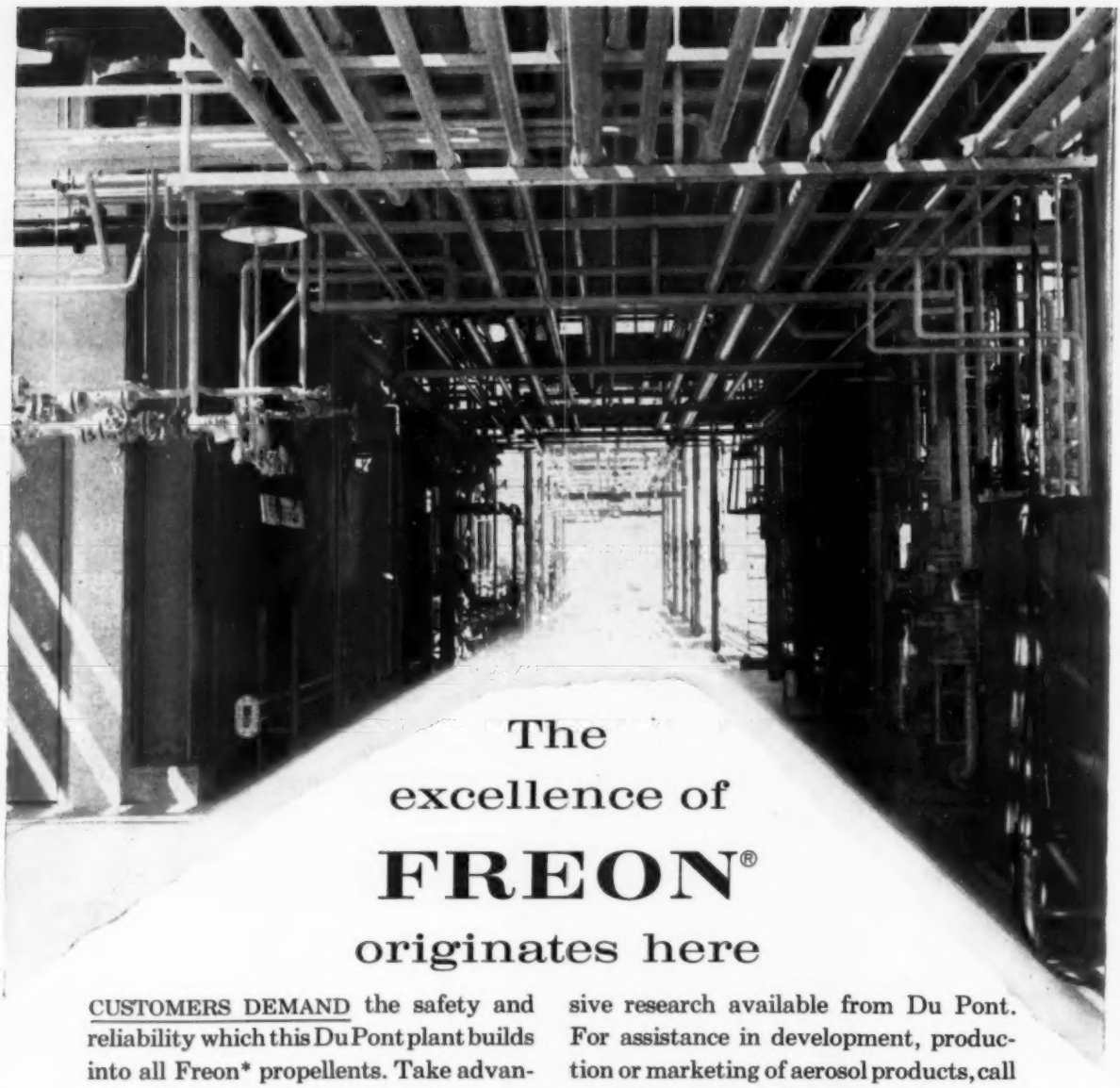

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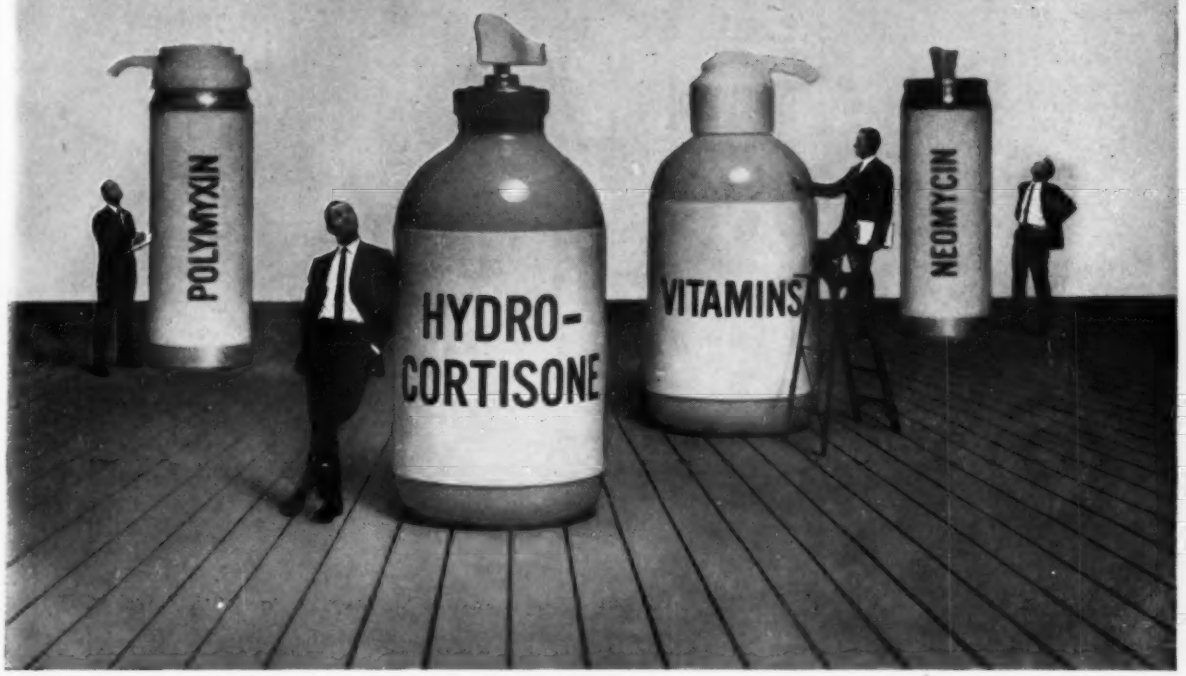

● The unique advantages of pressure packaging lend themselves to a number of pharmaceutical products and applications. For some time now Pfizer has been working in close cooperation with the pressure packaging industry to develop formulations where these advantages will be most profitable for pharmaceutical manufacturers.

For example, the stability of liquid multivitamins is greatly extended by pressure packaging because the preparations are overlayed by an inert gas, such as nitrogen, for the life of the container. Also, they are protected from the deleterious effects of light.

Another inherent advantage of pressure packaging is the complete freedom from atmospheric contamination afforded the contents of the package. Topical preparations utilizing Pfizer Hydrocortisone and the antibiotics—neomycin and polymyxin—as well as multivitamin preparations are particularly enhanced by this feature.

The Pfizer non-toxic plasticizers—Citroflex® A-2 and A-4 have proven highly effective for polyvinyl compounds used in pressure packed hair sprays and spray bandages.

Because of the firm conviction that pressure packaging will play an important role in the pharmaceutical industry, Pfizer is continuing to direct considerable effort towards the development of antibiotic, steroid and vitamin aerosol formulations. For a report concerning the role pressure packaging is playing, and will play, in the pharmaceutical industry write to Pfizer requesting reprints of the article, "Pressure-Packed Pharmaceuticals."

Among the many other advantages of pressure packed pharmaceuticals are:

- **Application is fast, convenient, uniform.**
- **A high concentration of a drug over a limited area may be obtained.**
- **Direct contact with the injured area is eliminated, often reducing pain.**
- **No waste through intermediate applicator.**
- **Dosage may be controlled accurately with metered valves.**

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from the

EDITOR'S MAILBAG

To the Editor:

Many thanks for publishing our article on Clinch Dimensions in the September issue of your magazine. In examining the text, we notice two mistakes which bear correcting:

Under Section C. Point 1.: "Height of Can Rim" we indicated that "the height of the can rim for the most well-known can types is approx. .155" ± .055". This is to be replaced by:

.130" ± .005" = 3,30 mm ± 0,13 mm.

The same correction applies for Section D, Paragraph 2nd: "True Clinch Dimensions" where under c) in your article the "Rim Height" was printed as .355"±.005". This too is to be replaced by:

.130" ± .005" = 3,30 mm ± 0,13 mm.

B. Knusel
PRECISION VALVE INTERNATIONAL SA
Zurich, Switzerland

•

To the Editor:

In the March issue of your magazine (in an article entitled "Aerosol Packaging in Norway") it is reported that Aerosol Fylling is the only custom filler in Norway. This is incorrect as there is another.

Norosol
Roar R. Randby A/S
Hansteens Gt. 4
Oslo, Norway

This company is operated by the Randbys, senior and junior and fills a wide range of products. We would be obliged if you would call this to the attention of your readers.

A. Kubler
SPRUHTECHNIK GMBH
Rheinfelden/Baden, Germany

Reader Kubler is correct on this. Norosol is an enterprising company and called this discrepancy to our attention soon after it appeared in print. Some time early next year this magazine will carry a full story on Norosol's activities.—The Editor.

•

To the Editor:

Referring to your November issue, in which you ran a story on page 44 concerning the representative connection of Roy Hemmingstad with the E. J. McKernan Co. in connection with Seaquist Valves, the reference to our company was incorrectly made in the *past tense.*

We would like to have this clarified, if you will, indicating that Mr. Hemmingstad was formerly associated with Sterling Seal and Ross Containers and is at present representing the West Penn Mfg. & Supply Corp.

(*Continued on page* 120)

• **The Story of Stalfort Pressure-Pak** . . . A new automatic food and pharmaceutical filling line, plus rigid quality control throughout the plant, give Stalfort a "jump" on some of its competitors. Photographs and text of this AEROSOL AGE exclusive begin on page 36.

• **Revlon Criticized for Role in TV Quiz Scandal** . . . On page 39 appears a summary of a month of rapid developments in which the honesty of television and even of the moral fiber of the nation are questioned.

• **Canadian Chemical Specialties Manufacturers Meet in Toronto** . . . A full report on the Toronto meeting, including the texts of three of the four aerosol papers presented, begins on page 40. Insect resistance to insecticides, chief worry of aerosol marketers, comes in for major attention.

• **An Improved Instrument to Determine Aerosol Chilling** . . . Theodore Dunne, General Chemical expert, writes of a device to measure propellant chilling. Diagrams, photographs, and a complete description appear on page 52.

• **Diazinon—As a Toxicant for Use in Aerosol Insecticides** . . . Continuing its coverage of insect resistance, AEROSOL AGE publishes an exclusive report on Geigy's toxicant for crawling insects and roaches. Article by D. B. Whitlow appears on page 57.

• **The Importance of Aerosol Technology to the Community Pharmacist** . . . Should courses on aerosol technical subjects be included on the curricula of pharmacy colleges? On page 66 there begins an affirmative opinion on this proposal.

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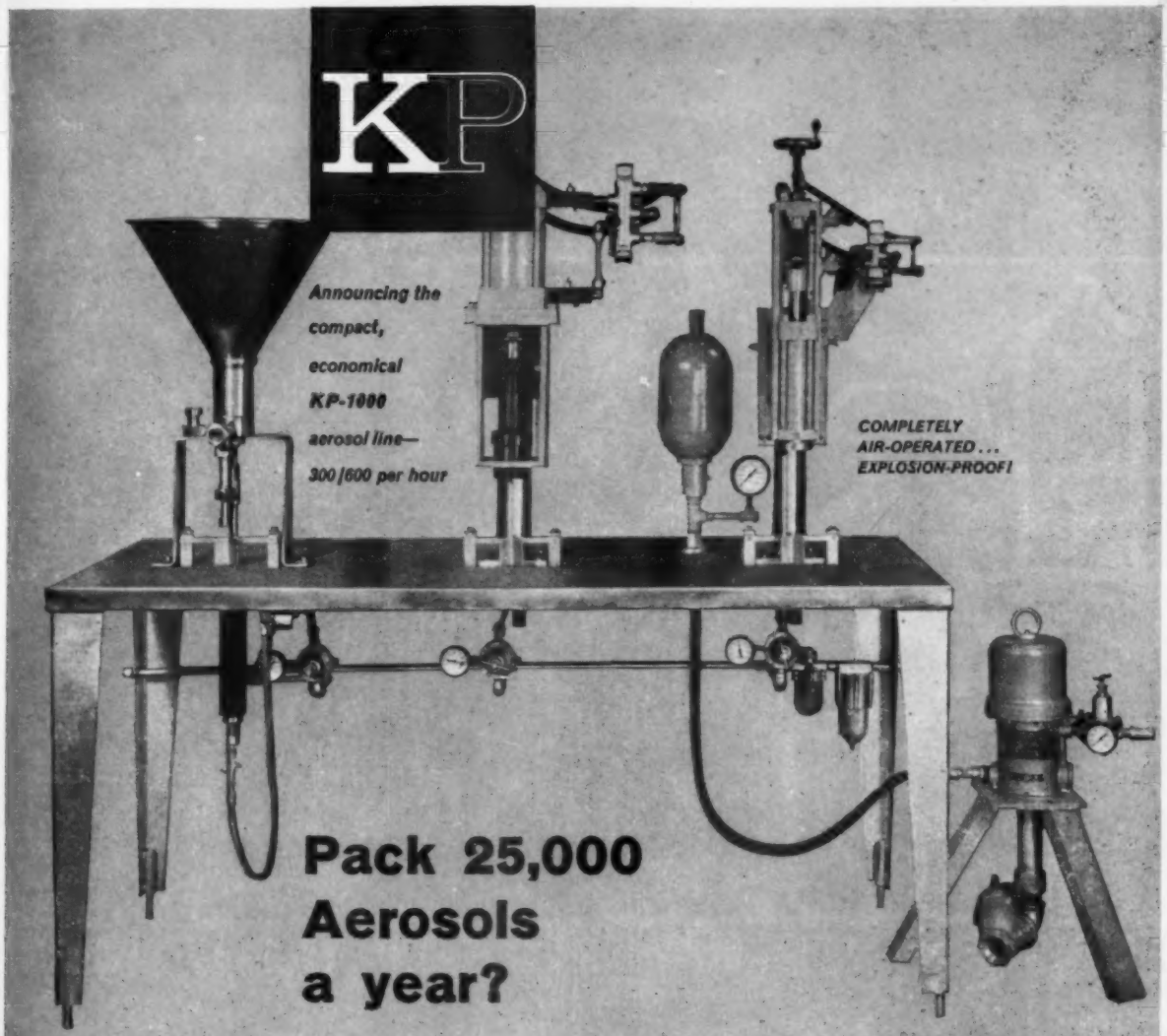

Pack 25,000 Aerosols a year?

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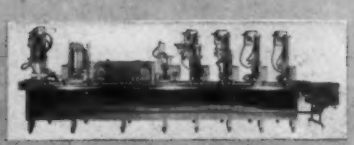
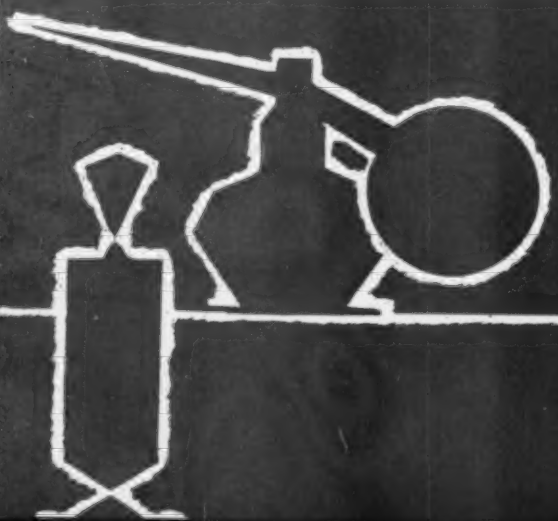


NEW "800" LINE, the automatic single straight line. Also available as double track line for larger volume. Completely engineered throughout.



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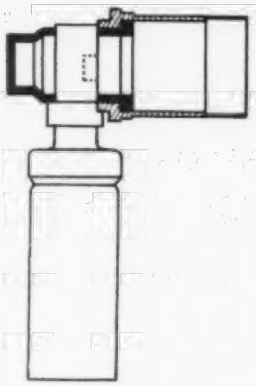

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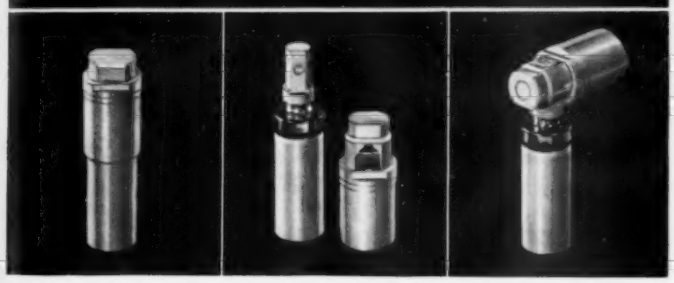

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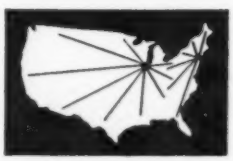

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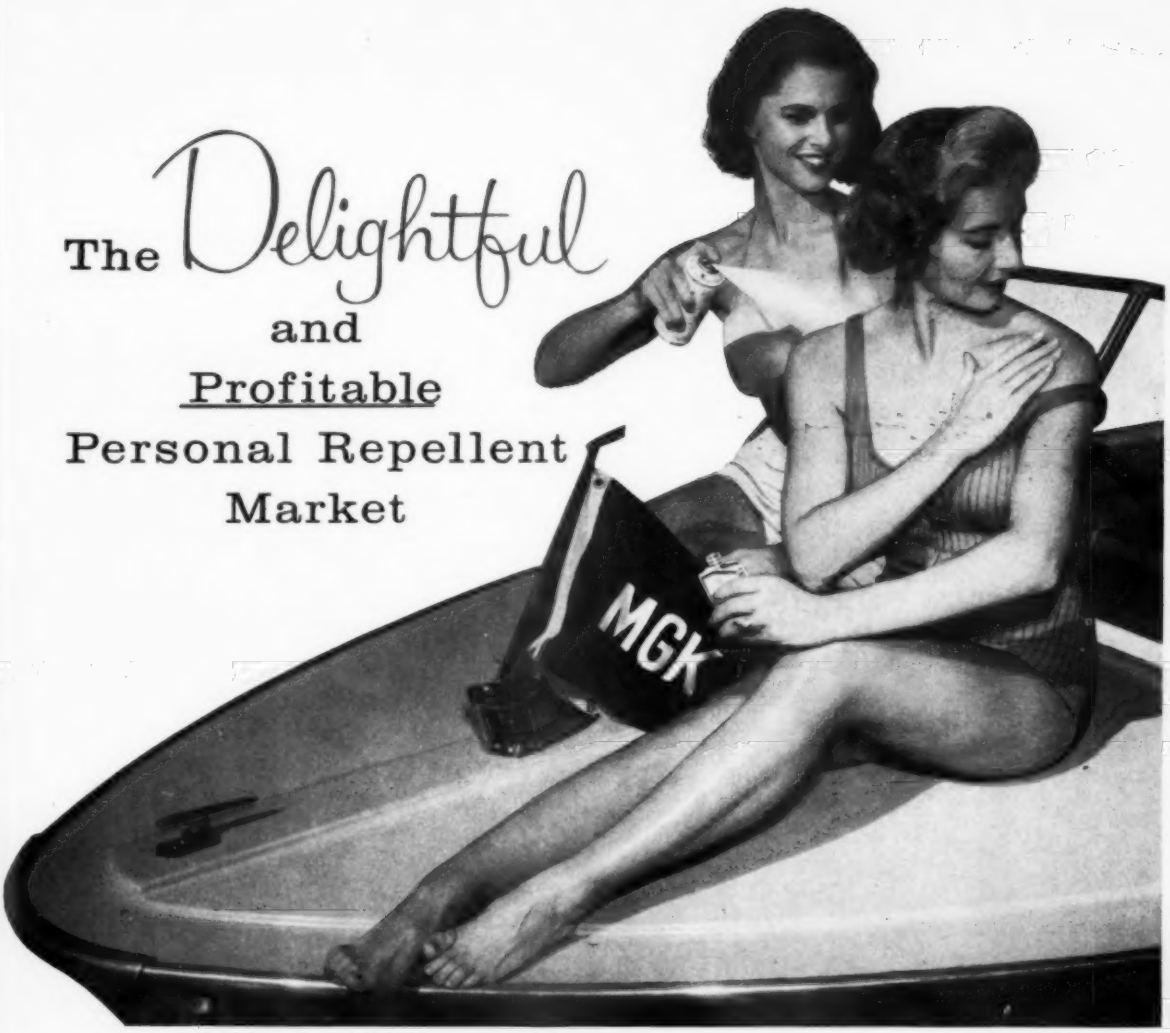

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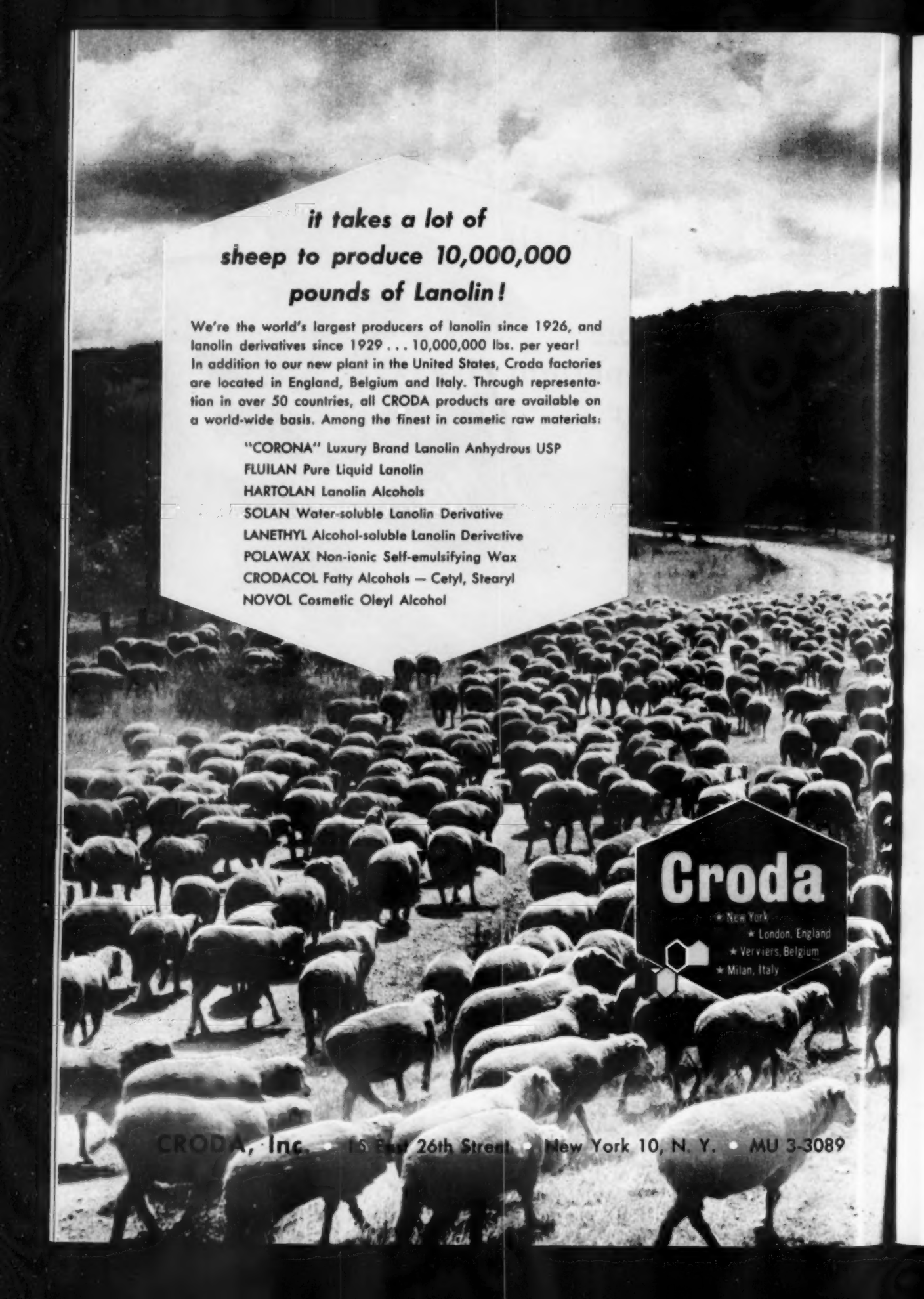
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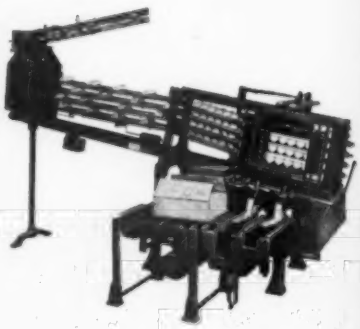

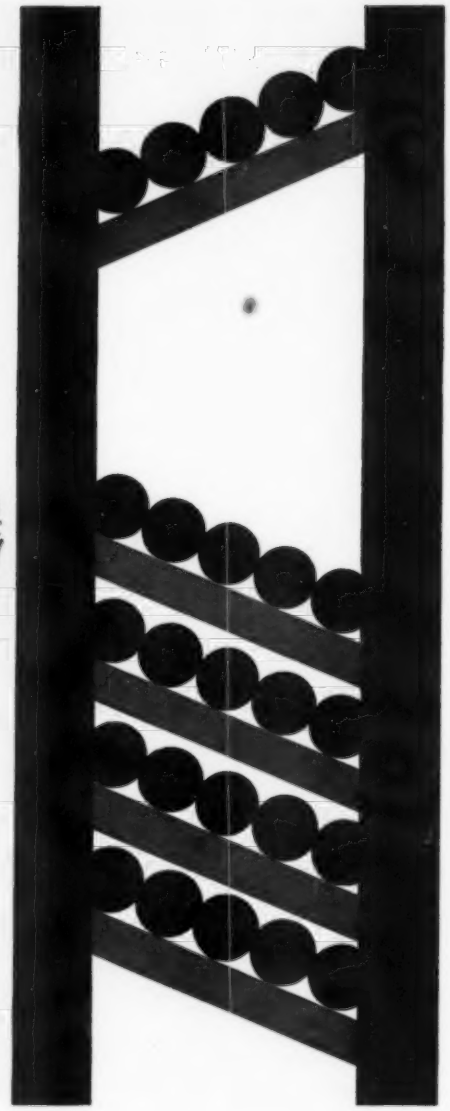

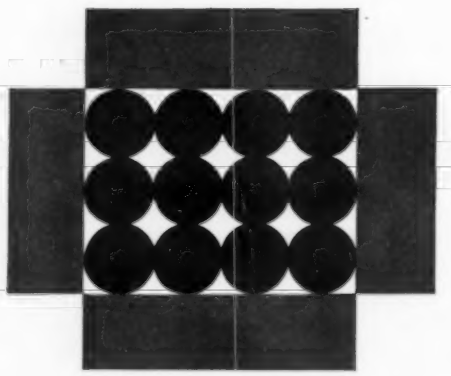

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- Dow's extensive research facilities and accumulated technical data are at your service. We welcome the opportunity to help with your specific technical problems.

Specifying Dow methylene chloride is one sure way of helping to keep ingredient costs down and product dependability up. For more information, contact THE DOW CHEMICAL COMPANY, Midland, Michigan, Chemicals Merchandising Department 708B12.

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EDITORIALS

Insect Resistance—Growing Threat

AS will be seen by this magazine's reporting of two technical papers given before the second annual meeting of the Canadian Manufacturers of Chemical Specialties Manufacturers Association (page 40), the quick spread of insecticide-resistant flies, mosquitoes, and roaches is causing growing concern—not only to entomologists, agricultural sprayers, and government insect experts, but equally to the formulators and marketers of aerosol and conventional insecticides.

In fact, in the words of John Davy, science correspondent of the London *Observer,* "The concern of biologists about the growing resistance of many pests to many insecticides is matched only by the current concern of doctors about the formidable problem of antibiotic-resistant staphylococcus in hospitals. The problems are similar and have arisen largely because of lack of biological foresight. By using antibiotics and pesticides as *blunt instruments,* several problems were solved quickly and dramatically—but new and potentially more difficult ones are emerging." (*Chemical Age, Oct.* 17, 1959).

What all this means to the aerosol insecticide formulator and marketer is that he must keep close watch on the performance of his product against common household and garden pests. As resistance to certain insecticide materials spreads into areas where he is marketing his particular product, the formula for that product may have to be strengthened or radically changed to keep the product's efficiency at a level that will satisfy the customer. For, as has been emphasized in this column a number of times before, the most likely way to kill off chances of a repeat sale is to sell an insecticide that will either not kill the common pests, or will necessitate excessive (and hence uneconomical) applications to finally do the job.

The aerosol industry, in its endeavors to formulate for specific purposes, can plead "not guilty" to the charge of attempting to use insecticides as "blunt instruments." Working closely with the expert technical service personnel of the insecticide suppliers, the marketer has been able to formulate efficient products for household flying insects, crawling insects, garden insects, and even for specific houseplant insects. Marketing competition has usually served to eliminate the product that doesn't work, and has served to stimulate development of new insecticides with more selective targets.

But rapidly spreading resistance patterns have changed this picture. Now, a product that is effective in one area of the country may work only partially against the same type insect in other areas. Similarly, a formulation that has been developed over the course of several years of initial research, shelf testing, test marketing, etc., may not work as intended by the time it is ready for full-scale marketing—due to changes in the resistance situation. Old reliable formulas that have been responsible for the initial marketing success of a product may no longer work. And so it goes.

All this should alert the aerosol insecticide marketer to the fact that his formula (especially the chlorinated hydrocarbon components) will have to be regularly reviewed and tested. Through his insecticide supplier, he should keep himself informed of shifts in resistant insect populations. But the time to do all this is *before* his product loses its effectiveness, and hence its consumer appeal. ★

A view of the main food-pharmaceutical filling room, showing the line, the glass walls, and three ingredient mixing kettles.

the Story of Stalfort Pressure-Pak

A gleaming new food-pharmaceutical line gives an old established filling company a "jump" in this potentially huge phase of custom filling for the aerosol market

ALTHOUGH the filling of aerosol products might seem a natural offshoot of conventional liquid product filling, anyone with any specific knowledge at all of the pressurized packaging industry is aware that the aerosol package has brought innumerable new technical problems to the custom filling field. One of the rare companies that has made the successful transition from conventional to conventional-*and*-aerosol filling is John C. Stalfort & Sons, Inc., Baltimore, whose Stalfort Pressure-Pak subsidiary has become one of the major custom aerosol fillers in the U. S.

John C. Stalfort & Sons can make one claim that will go unchallenged in the young aerosol business—that of being the oldest company in the industry. For it was shortly after the close of the Civil War in 1868 that Stalfort first began operations. Since that time the company has succeeded in building an international reputation as a contract packager of waxes, polishes, cleaners, space deodorants, liquid insecticides, cosmetics, and allied products. In 1947, recognizing the aerosol package as the advent of a new era in packaging, the company installed its first aerosol filling line, which was used at first exclusively for aerosol insecticides, and later for hair sprays and other cosmetics.

By late 1949, the already booming aerosol business was severely taxing the company's small aerosol filling installation in downtown Baltimore, so plans were undertaken for construction of a new aerosol plant in a suburban-industrial area between the city and Baltimore's Friendship Airport. In January 1951 the present plant was completed, and all of the company's aerosol operations were transferred there. Since that time there have been several minor expansions, and the building now occupies more than 75,000 square feet of space — or about enough to hold approximately 100 freight car loads of aerosol product.

THE visitor to the manufacturing area of the plant would probably be most impressed by the way everything to do with the actual filling operation has been so highly integrated.

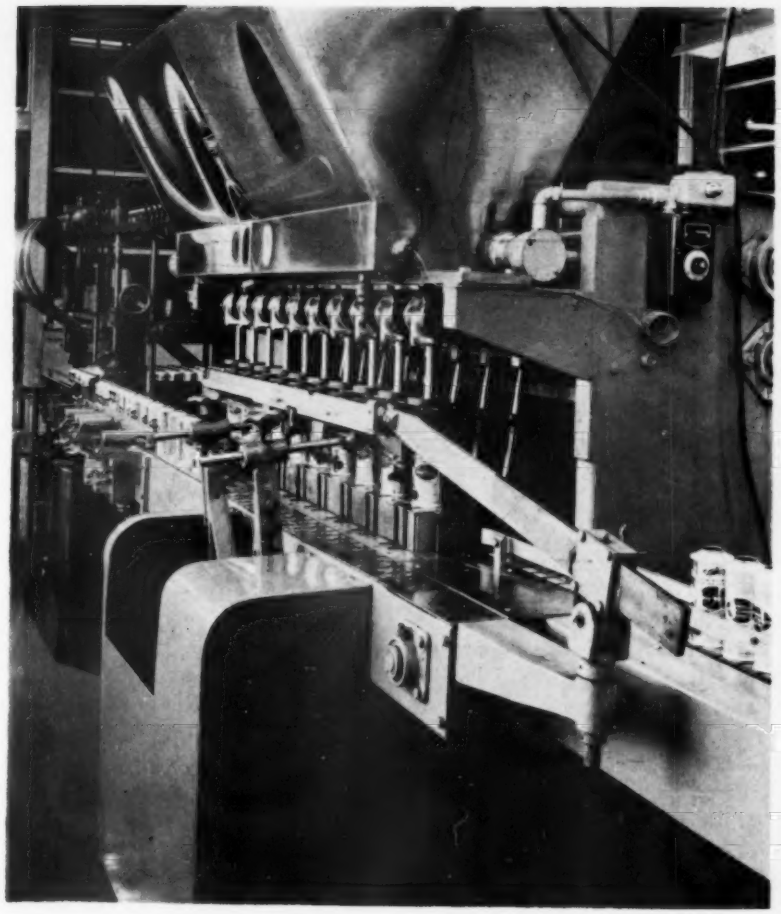
filling lines are set up so they operate from the same ingredient source. By adjusting propellant intake and ingredient mixing, all three lines can be operated to fill the same product, thus giving Stalfort the ability to turn three-quarters of its facilities to the packaging of a single product. These three lines, plus one smaller semi-automatic unit (used mainly for pharmaceutical products and test runs for future large-volume orders) and a new food-pharmaceutical line, give Stalfort a total capacity in excess of 235,000 containers per shift per day.

These three high-volume lines can operate either by cold or pressure filling, though for cold filling they utilize two separate refrigeration systems. Located at the central point from which the lines begin is Stalfort's one-stage cold filling equipment. Concentrate and propellant are premixed in specially designed 10,000-pound capacity litho-coated tanks, and then filled directly into the containers, the valves inserted and then crimped. This automatic process, which involves introducing ingredient and then propellant into the tanks (by weight) and then mixing, simplifies the whole materials handling problem and insures a set mixture in each container.

Though the equipment for the production lines was assembled from standard filling equipment offered by aerosol suppliers, most of it has some added "wrinkle" by Stalfort engineers to increase either accuracy or operational speed.

On these three lines quality control personnel occupy way stations to measure fill, weight, valve operation, and other important product data. As in most well-run aerosol operations, these personnel are empowered to close down operations if any shortcomings are detected in the final product. There is an intentional duplication of effort in certain areas to insure that one quality control operator's oversight will be picked up further along the line by another.

In addition to the obvious aid this quality control effort has been in building Stalfort's reputation for quality filling, it has paid off in a number of other areas. For one thing, high-prestige pharmaceutical companies of the caliber of Lederle, Schering, Pfizer, and Merck, always extra cautious about having anyone do any outside packaging, have entrusted to Stalfort the pressure packaging of a whole series of important aerosol pharmaceuticals. This in turn has led to other high-prestige accounts for Stalfort, including firms in the cosmetic, chemical specialties, and automotive product marketing areas.

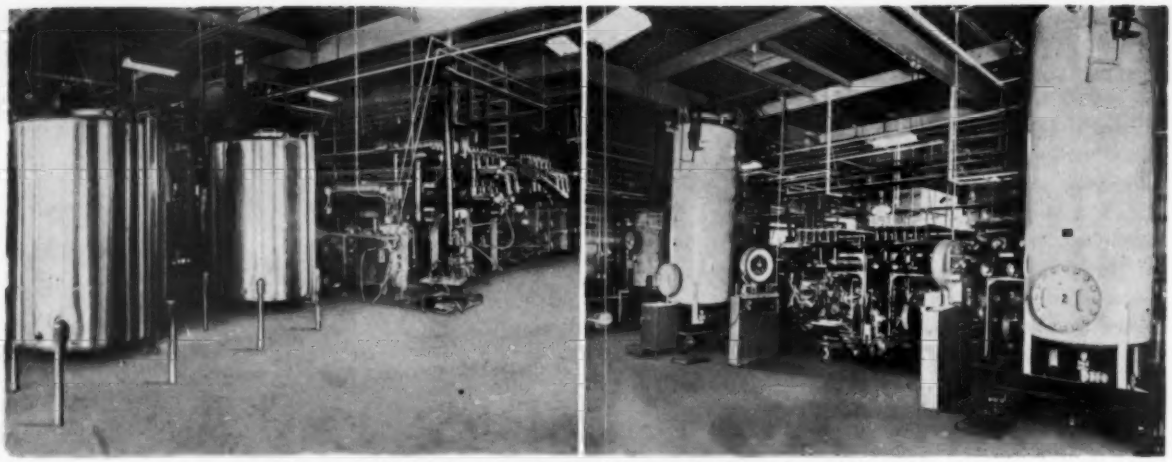


Ingredient filler on the food-pharmaceutical line is this Colton-Hope 10-head unit. Container cleaner is in background.

This stringent quality control is evidenced, not only by the many line personnel engaged in it, but by some "hidden" techniques that are less obvious. For instance, in the one-stage mixing process described above, density readings are taken of the ingredient and propellant storage tanks at given intervals—as an aid in predicting the compatibility of each of the components. Then too, the propellant is carefully evaluated for moisture and the readings recorded to give a more complete quality control operation for each product.

All these tried procedures of insuring product quality have been incorporated into the company's shiny new food and pharmaceutical line, which is housed in a separate glass-enclosed structure within the main filling plant. This high-speed automatic pressure-fill installation was designed from the ground up to take into account the many bacteriological and other cleanliness problems normally associated with food and pharmaceutical filling —with no sacrifice of line filling speed. Colton-Hope rotary equipment with stainless steel heads was selected with these objects in mind.

Naturally enough, first operation on the line is container cleaning, and



The main filling plant is equipped with mixing kettles (left) and the ingredient-propellant mixing tanks (right) to facilitate a "one-phase" filling operation. The tanks at right are mounted on weighing devices.

purging. This is accomplished by a Colton-Hope in-line unit, which delivers the cleaned, dried cans to a 10-filling-head Hope in-line filler topped by a huge stainless steel ingredient kettle.

A conveyor takes the filled cans to an eight-head Colton-Hope rotary crimper, which purges the inert gas left by the ingredient filler, holds a vacuum, repurges, and then crimps. Next stop on the conveyor is a 15-head rotary gasser-shaker unit which can be used for either compressed gas or conventional fluorinated hydrocarbon propellants. This particular unit can do both operations or only one, depending on the type of propellant with which a particular product is charged.

Final station in the glass-enclosed room is one not usually encountered in an aerosol production installation. Since the usual hot-water bath wouldn't do for such perishable products as certain foods, multi-vitamins, and antibiotics, an automatic pressure and leak checker is employed. This unit checks the internal pressure of each container and rejects any not within plus or minus two pounds of a set standard.

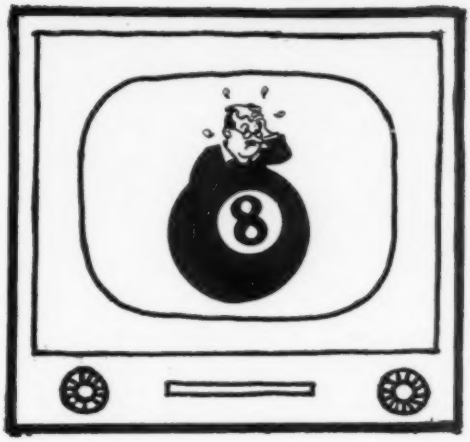
The conveyor then takes the finished containers outside the sanitary glass-enclosed room to a coder-dater, from which they are transferred to a labeler and then cartoned for final shipment.

Part of Stalfort's well-equipped laboratory. A large shelf-testing section is located off-camera to the left.

This sanitary food-pharmaceutical line can be given a number of operating innovations, depending on the particular product to be handled. For instance, when filling a multi-vitamin product for Lederle, the ingredient filler is fed directly from a tank truck (which each day comes from Lederle's plant and must be used up in a single day's operation). The vitamin product is pumped from the tank truck as needed by means of "flushing" with nitrogen or some similar inert gas. As can be guessed, use of such inert gases to fill the vacuum over the product as it is evacuated is a practical means of reducing either contamination or product breakdown should air be allowed to occupy the "headspace" in the ingredient tank.

During the filling of any particular product, Stalfort explicitly invites the customer's quality control personnel to observe the entire operation. For both these observers and for the customer's own quality control operation, Stalfort's quality control staff prepares extensive charts listing such data as liquid temperature, bath temperature (except for the food line), gross weight, tare weight, and net weight. At specified time intervals, another chart is prepared listing weights for concentrate plus propellant, concentrate without propellant (prior to gassing).

(*Continued on Page* 125)



Revlon Comes Under Fire for Key Role in Television Quiz Scandal

THE fact that rigged television quiz programs over a four-year period helped triple the sales of Revlon, Inc., New York, leading aerosol marketer (hair sprays, colognes, shoe polishes) last month drew heavy fire to the company and its president, Charles H. Revson. Revlon, prime sponsor of the rigged *$64,000 Question* and the *$64,000 Challenge*, had difficulty explaining charges by Mort Koplin and Steve Carlin, producers of the shows, that company executives directly influenced which contestants would be given answers and which wouldn't.

Also contributing to Revlon's embarrassment were conflicting stories by George Abrams, former vice-president in charge of advertising for Revlon, and Martin Revson, brother of the president and former executive vice president, about how much of a hand the company actually had in the rigging. In a sworn deposition, Mr. Abrams declared that the sponsors "understood the technique used for controlling the destiny of a contestant" and often made suggestions at the weekly meetings with the producers for keeping certain contestants winning and causing others to lose. Martin Revson, in testimony before a Special House Investigating subcommittee, gave this version: "I never believed the producer could throw a contestant off the show when he wished. I never directed or suggested that any contestant be removed from the show by giving him a hard question. I never directed or suggested that any contestant be given an easy question."

In their testimony, Messrs. Koplin and Carlin, the producers, pictured Martin Revson as the man who had the greatest influence in determining the fate of the contestants. They claimed that Mr. Revson and other company representatives, during weekly meetings on the program, expressed "displeasure" and reciminations" if the producers failed to eliminate a particular contestant. They said that the sponsors never indicated exactly how this was to be done, but often threatened to drop sponsorship of the programs if it wasn't.

Immediately after the testimony of Messrs. Koplin and Carlin, Revlon issued the following statement: "Pressure from a sponsor to do a better job did not give quiz program producers a license to cheat. Ownership of the shows in question and control of their contents, except for commercials, remained solely in the hands of the producing company, Entertainment Productions, Inc. Revlon did suggest numerous ways in which the programs could be improved, but rigging was not one of them."

This disparagement of testimony brought a flood of editorial comment, most of it aimed directly at Revlon and its chief executives:

> "The fact that Revlon and its head, Charles Revson, have been involved in testimony has created an unusual twist. For years boosters of advertising have pointed to the Revlon success story as an example of what could be accomplished with an astute advertising program."
>
> Carl Spielvogel in the *New York Times*, Nov. 8

> "Wherever the truth lay, the thought of Charlie Revson being 'flabbergasted' was almost more than Madison Avenue could bear. When it comes to business, Revson not only knows all the answers, he knows the questions, too. To underlings and admen who do not know them, Revson is a merciless taskmaster. He has axed his way through seven different ad advencies in the past three years, rubbed off dozens of account executives. At one time his executive turnover was so great that people who stayed at Revlon a year, so the story goes, got together and had an oldtimer's lunch!"
>
> *Time* Magazine, Nov. 16

Revlon's sudden success as a cosmetics marketer has paralleled the success of the television quiz shows. In four years, profits increased seven-fold and sales nearly tripled. Six months after the company first began to sponsor the *$64,000 Question* (July '55), sales were running ahead of those of the previous year. The company recorded a sales increase from $33.6 million in 1954 to $85.7 million in 1956. Profits during the rise in popularity of quiz programs rose from $1.3 million in 1954 to nearly $9.7 million last year. After being privately owned for 23 years, the company first sold its stock publicly in Nov. 1955 and obtained a New York Stock Exchange listing in 1956.

Chief public attacker of Revlon during the past month has been Philip Cortney, president of Coty, Inc., Revlon rival in the cosmetics field. In an address to the New York Sales Executives Club on Oct. 28, he demanded that sponsors, networks, and contestants "donate their ill-gotten gains as conscience money to various charities."

(*Continued on page* 120)

G. H. Wood (G. H. Wood & Co., Toronto) newly-elected president of the CMCS, (left) and Amasast A. Aroutuniam, Russian ambassador to Canada, who was the featured speaker at the CMCS's Nov. 4 luncheon.

Canadian Chemical Specialties Mfrs. Told of Growing Resistance Problem

GROWING resistance of flies, roaches and other common insects to a wide range of insecticides now has the industry "on the run," a leading authority on resistance told the second annual meeting of the Canadian Manufacturers of Chemical Specialties Association at Toronto's Royal York Hotel Nov. 2-4. The authority was Dr. A. W. A. Brown, head of the department of zoology of the University of Western Ontario, who pointed out that many species of insects were acclimating to insecticides by Darwinian selection, and that these materials were killing off the more susceptible and leaving the hardy ones.

At least 60 species of insects of agricultural importance and 62 of significance to public health and veterinary fields have developed resistance, Dr. Brown revealed. In the case of flies, he said, the mechanism by which the resistance is effected is apparently the ability to actually "detoxiphy" certain insecticides. He reported that flies have been developing resistance to DDT, BHC, heptachlor, endrin, dieldrin, and also to such organic phosphorous compounds as malathion. 'Since it costs about $1.7 million to develop, test, and distribute a new insecticide, this whole problem is becoming increasingly crucial."

Despite the fact that $1.7 billion has been spent to control malaria, resistance has developed in fully 5% of the area treated, he reported. "Eighteen species of the *Anopheles* mosquito have shown resistance to dieldrin and in many cases to DDT as well. Body lice have become DDT resistant in most areas where mass area control methods have been tried, and have become BHC resistant in certain areas in Africa.

"Chlordane resistance in roaches has become almost general throughout the U. S. and the Carribbean area, and has already turned up in the major cities of Canada. Bedbug resistance to DDT has also become general in the U. S., and is becoming frequent for flies." He reported that mosquitoes are already giving evidence of resistance in New Jersey, Florida, and California.

"In nearly every case resistance first appeared as the result of a control failure, sometimes as a repeated control failure." What is very much needed is a set test for target insects he declared.

Dr. Brown criticized previous methods of insecticide testing for the German roach, which he said usually consists of trying an insecticide, and if that doesn't work, trying another. This type of approach, he charged, is inferior because it provides an unconfirmed record of resistance. He cautioned against generalization over wide geographical areas, and advised

Top row: G. E. Flemming (Guardian Chem. & Equip.), outgoing CMCS president; and G. H. Glass (The Tariff Board). George Kerbey (Fairfield Chemical), George Hartz (Prentiss) and Joe Gregory (Newman-Green). Harold Schafer (Gold Seal Co.). Bottom Row: Dr. A. W. A. Brown (University of Western Ontario) and John Odeneal (Fairfield). Joe Pizzurro (Precision Valve), J. Lee and Paul Torpin (MGK), Joe Gregory, and Gordon Gilroy (Precision). Ralph Legate (Precision), Carl Durant (Aerocide Dispensers), and G. H. Glass.

that each insecticide should be separately tested against specific insects in specific areas.

He warned that careless use of all leading insecticides combined with the spread of resistance, would most likely sharply curtail the economic life of these materials.

FURTHER data on insect resistance was reported by John Odeneal, technical sales section of Fairfield Chemicals Division of Food Machinery & Chemical Corp., New York. The more remote the chemical structure from that of the material to which the insect is resistant, the more effective it usually is, he declared.

Aerosols are just as susceptible to resistance as conventional insecticides, Mr. Odeneal said. "The housewife has no way of evaluating resistance, and it is a reflex action for her to throw away a product if it doesn't work.

"The older toxicants seem to provide a general resistance pattern throughout the U. S. The ultimate solution will be the development of new toxicants tailored for specific purposes. However, the high cost of developing new toxicants has already curtailed activity among the insecticide manufacturer. It takes $1.7 million and three to five years of developmental work to produce a new insectide. This year there were *no* new insecticides cleared by the USDA and last year there were *just two!*"

Mr. Odeneal reported that the constant changing from one insecticide to another (in the case of roaches and flies) had been far from successful, particularly in the case of residual materials. In Corpus Christi, Tex., he reported, 22 times more chlordane than normal was required to kill 36 out of 100 roaches.

DESPITE the fact nearly all primary insecticide toxicants are imported into Canada, the Canadian formulator must accept full responsibility for testing his product, Lloyd Roadhouse of the Scientific Information Section of the Research Branch, Canada Dept. of Agriculture declared. The marketer could well use more research on the effectiveness of his product, with particular attention to differences achieved with different solvents and carriers.

In his approach to use of any given household or garden insecticide, the consumer finds difficulty in determining when, where, and exactly how to use them, Mr. Roadhouse advised. More descretion should be exercised in choice of retail outlets, and even

G. H. Wood Elected President of CMCS

G. H. Wood, president of G. H. Wood and Co. Ltd., Toronto, was elected president of the Canadian Manufacturers of Chemical Specialties Association at the election of officers held on Nov. 3. R. L. Jones of Colgate-Palmolive Ltd., Toronto, and A. H. Carter of John Struthers & Co. Ltd., Montreal, were elected vice-presidents; A. Robins of Cartier Chemical Co. Ltd., Lachine, Que.; was named secretary, and G. S. Lang of Connecticut Chemicals (Canada), Toronto was elected treasurer.

The new list of directors, in addition to George E. Flemming, of Guardian Chemical & Equipment Co. Ltd., Montreal, past president of the association, includes:

R. T. Howard, A. H. Howard Chemical Co. Ltd., Orangeville, Ont.

G. V. Jansen, S. C. Johnson & Son, Ltd., Brantford, Ont.

H. G. Lederer, R. M. Hollingshead Corp. Ltd., Bowmanville, Ont.

R. S. Sweet, Success Wax Limited, Quebec, Que.

Carl Durant, Aerocide Dispensers Ltd., Scarborough, Ont.

Don Lee, DuPont of Canada Limited, Montreal, Que.

then the dealer and retailer should be kept better informed about how to best use these products. He called for more honesty in labeling, pointing out that there is often a tendency to list non-valid "fringe" benefits for a product which it does not really possess. As an instance of this, he cited terosol formulations—not really applicable for crawling insects—whose labels profess that they control such insects.

Mr. Roadhouse said that shelf life testing is still not being done with enough detail. Deficiencies in shelf life accounted for 15% of total deficiencies recorded in product surveys by the Canada Dept. of Agriculture, he reported.

SPEAKING on the same panel with Mr. Roadhouse were Dr. E. Mastromatteo, of the Division of Industrial Hygiene, Ontario Dept. of Health; and Dr. H. Gray of the Board of Grain Commissioners, Ottawa. Dr. Mastromatteo called for further work by insecticide manufacturers and marketers in the study of medical effects caused by accidental ingestion of their products. He pointed out that the problem of public health officials in treating such occurrences is complicated by the difficulty of early diagnosis.

In addition to accidental ingestion on the part of children and incidents of gross food contamination, he reported that there have been attempts at suicide through intentional ingestion of such materials. The large majority of cases of insecticide poisoning, however, Dr. Mastromatteo pointed out, occurred among primary producers, research and development personnel, formulators and blenders, and custom and private applicators.

The peculiar characteristic about good insect control is that the one who performs normal good housekeeping

The panel on insecticides included (from left): Lloyd Roadhouse; Dr. H. Gray; W. S. McLeod (Canada Dept. of Agriculture), moderator; A. H. Carter, chairman; Dr. E. Mastromatteo; and Dr. A. W. A. Brown.

Russian Ambassador Says USSR Will Lead U. S. by 1970

THE USSR will overhaul the U.S. in per capita production and will achieve the highest living standard in the world by 1970, Amasast A. Aroutunian, Russian ambassador to Canada, told the Canadian Manufacturers of Chemical Specialties at their annual meeting on Nov. 4. This emergence by the USSR will not harm the economy of the U.S. or of Canada, but will create new incentives to the Western world to generally increase their own production, he asserted.

Acknowledging that the USSR still has far to go, particularly in steel production and development of other heavy industries, Mr. Aroutunian pointed out that his country is "catching up" at the fastest rate of any country in the history of the world. "Despite the war damage suffered by Russia in World War II — nearly $500 billion, or a loss equal to gains by the Soviet toward its economy for all the years between the two World Wars — the pre-war economic output was reached in 1948 and since that time there has been an annual growth of 15% per annum."

"In spite of the fact that our national chemical industry was actually started after the war, we have already achieved second position in world chemical production, and the current seven-year plan calls for a three-quarters rise in chemical output. Since the war 140 new large-scale chemical enterprises have been established, and 130 older ones have been renovated."

Mr. Aroutunian acknowledged that heavy industry has been given precedence over the chemical industry and over production of consumer goods, but explained that Soviet economic planners have long thought of heavy industry as the soundest basis for any nation's economic development. He admitted consumer shortages of television sets, refrigerators, washers, etc., but said that there has been an increase of nearly 10.5% in consumer goods production this year.

One field in which the Soviet is leading the West, he claimed, is in automation and mechanization of industry. In such areas as the chemical industry, he said, there are completely automatic plants in production. These are aimed mainly at increasing production, easing the work load on the individual worker, and increasing general plant efficiency.

Much of Soviet effort in the future will be devoted to development of East and West Siberia, and the Ural Region, he said, with as much as 40% of future expenditures slated for that region. New heavy manufacturing, chemical enterprises, mines, etc., will be built there, he said.

Welcoming Canada's industrial expansion, Mr. Aroutunian said an exchange of information between industrial interests in the two countries would be helpful in increasing the productive output of both countries.★

COMMERCIAL DEVELOPMENT of an AEROSOL PRODUCT

*By Winston H. Reed, Ph.D.**
President
Reed Research Corp.
Shelton, Conn.

THE "Commercial Development of an Aerosol Product" might be discussed in several ways. The scope of this talk will be limited to three main considerations:

(1) Selection
(2) Pricing
(3) Marketing

the latter to include distribution and promotion.

In the many talks and papers given on aerosols at the various trade associations and conventions, it is most common to find extolled the spectacular story of the successful products. Many excellent papers have also been given covering the technical aspects of the industry in describing how to handle many of the production and laboratory problems that arise.

The drama of the swift growth of this business and the almost (but not quite) universal recognition of the value of mutual exchange of information on technical problems most naturally merited the emphasis they received. Emphasis has been on histories of successful products. Not so well publicized among the stories of aerosol products are some records, equally spectacular in their own way, which, for obvious reasons have been swept under a corporate rug.

It is unfortunate that some of the sad mistakes of the industry have not been more fully documented, since, taken together with the case histories of successful products, the mistakes provide a guide to the newcomer in the field on the selection of products and improved paths for their commercial development. Most of the stories in the trade on poor products have been passed along verbally. Such records are easily subject to distortion or are lost, especially where those most familiar with the story have moved into a different industry.

We have tried to keep in our files a record of interesting examples of both good products and bad. It is valuable to note that in many of these cases the real trouble was *insufficient attention to common sense in the original selection of the product.* Other troubles were due to insufficient product development from a technical standpoint or to promotion, sales and distribution policies.

The C.S.M.A. has provided an excellent check-list for reviewing the technical and production development of an aerosol product. It is equally important to set up a check-list for the selection of products for commercial development.

Product Selection

Some of the major points to be considered are as follows:

1. Is it worth while?
2. Frequency of use.
3. Potential market volume
4. Competitive situation
5. Duration of sales season
6. State of product development
7. Patentability
8. Ease of production
9. Consumer education required
10. Profit margin

At the beginning of commercial development it is often difficult to assess quantitatively the points just mentioned. An analogous situation is the list of points that have to be considered and weighed in the selection of a new location for a chemical plant. Such items as labor market, transportation costs, availability of raw materials and other items have to be evaluated on a basis of fact and experienced judgment. It is possible to arbitrarily assign numerical points to each of the important factors in plant location. One such scheme was suggested by McBride (1).

A similar rating point system can be set up for aerosol product selection. The ratings can be made by a joint decision of sales, advertising, research production and management. Each company will have its own scale based on its product types and its marketing pattern. The market story on established products can be used to help correct and guide the weighing figures used, then new products can be evaluated using the scale one has established.

Let us consider in more detail the points listed:

1. Is It Worth While?

This is one of the most essential

*Presented at the second annual meeting of the Canadian Manufacturers of Chemical Specialties Association at Toronto on Nov. 4, 1959.

(1) McBride, B. S., *Chem. Met. Engr. 29*, 746 (1923).

points in the selection of aerosol packing for a product.

Better; as with insecticides
Quicker; as with paints
Easier; as with hair lacquers
New; as with shave cream, starch and Christmas snow.

Many products that have been considered for use in aerosols are already being sold and distributed in a perfectly adequate and, in some cases, superior package. Push button dispensing would be only a gimmick to add variety to the package types. Although advertising dollars may be poured in to get sales initially, if this pressure packaging technique does not offer a *real advantage,* or where with some products it is really a disadvantage, it would seem an ill-advised choice. Happily, there are so many areas where pressure packaging does a worthwhile job that the marketer has plenty of room for good selection.

2. Frequency of Use

This is a point of vital consideration. The ideal product would be one that every member of the family could use every day—shoe polish is an example of such a product. The market has been entered with several types of products. Initially, these were clear plastic sprays which did not have a good adhesion to leather or the flexibility so essential to a shoe coating. Better products have been appearing and shoe polish has been given sufficient promotion and should be capable of substantial volume.

It is strange that frequency of use has been so often ignored as a product selection factor by many companies. The neglect has been fatal particularly where they have attempted to launch a single aerosol. Several products come to mind, but a waterproofer would be one ideal example. The average housewife is not in the habit of waterproofing family coats or snow suits and even if she could be prevailed upon to do so, would still not use such an item very often.

There have been a few such successful items with a low frequency of use, but these have had exceptional novelty and natural public appeal to sustain them. Christmas snow is the leading example.

3. Potential Market Volume

If the pressurized package is a new form of an existing product (as with paints), then some market information may be available on the sales of touch-up paints. One can then make some guesses as to the fraction of this market which could be captured by a push button package. Where the product has no existing market counterpart, it may be very difficult to assess volume until a test marketing program has been made. Sample size might run from ten to a hundred thousand units and should be carried out with sufficient promotion to give worthwhile results. The "Freon" Products Division of DuPont has prepared a very excellent book titled "Markets for Aerosol Products," which contains a wealth of useful data.

4. Competition

The market record indicates aerosol products have been doing very well indeed in competition with the same type of product in non-aerosol form.

Where the competition is another well entrenched aerosol product, that does an equally good job, the going may not be so easy. Aerosol room deodorants and insecticides, for example, have been established for a sufficient length of time so that the production and technical problems are minor and there are a multiplicity of brands on the market. Some companies, in an urge to diversity, have moved into these areas with a new product line and a strong advertising program. Where the product was related to their main business they may have done a good job with it. In many cases where the distribution pattern is different and the product was quite foreign to their know-how, they have sustained volume only by advertising expenditures, which they may never get back.

5. Duration of Sales Season

This point is one that has to be weighed by each company according to its present practice and desires. While the product that sells equally well all year long is admittedly ideal, in some cases the marketer may badly need aerosol products that will level out the production and sales patterns of existing highly seasonal items. One of the strong advantages of a custom filler to a company with a few seasonal products is that in handling many product types he can balance out production and thus maintain lower costs. Where a manufacturer already has on the market such seasonal products as insecticides, he may wish to even out sales by adding to his line household cleaners, mothproofers, or even a cosmetic line which tends to develop its maximum sales in the Christmas selling season. But never forget in the product selection to look for some sure-fire items (such as shoe polish, shaving cream and hair lacquer) which are quite steady and non-seasonal in sales.

6. The State of Product Technical Development

How many months, man hours and dollars are going to be required to produce the desired items? While such a "me too" item as a room deodorant (with a slightly different odor) might require little or no development, it obviously requires *more* promotion in terms of its poor competitive situation. If the laboratory has under development something that is quite unique—and which is capable of a good total rating on the points considered in this list—financial support and strong encouragement by management is well justified. While it is common practice for many companies to do most of, or all their own product development, top management generally recognizes that creativity is not the exclusive domain of its own research team. Worthwhile developments can be purchased or licensed from outside sources.

7. Patentability

A development can be given a rating based upon a patent, where one has been obtained, or upon the probability of one where it is under application. If the product developed is of a type sufficiently clear cut to offer a patent advantage, then application should be made. Where a patent has been obtained and is to be made available for license, it has been found that too high a royalty is a great stimulus to research activities by other companies aimed a

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INSECT RESISTANCE—

Report on

A NEW SURVEY

By John F. Odeneal*
Asst. Technical Service Director
Fairfield Chemicals Division
Food Machinery and Chemicals Corp.

THIS report and survey applies primarily to aerosols and pressurized sprays and what may be done with available materials in the face of the problem of insect resistance.

Awareness of the resistant insect problem has been with us since shortly after World War II. Recently in Washington, D. C. a symposium on resistance was sponsored by the N.A.C.A. We hope this concern with resistance will develop solutions to the problem, and eventually techniques and possibly insecticide compounds which will stabilize insect control.

In this interim period, however, it is essential that manufacturers be fully aware of the effect of insecticides on the products they manufacture and utilize available insecticide compounds to the fullest extent.

Since the agricultural use of insecticides represents the greatest dollar volume in this field, most effort has been devoted to this area. Fairfield Chemicals, however, is primarily concerned with insecticides used in home and industry and, therefore, using information borrowed from extensive agricultural investigations an attempt was made to evaluate the effect of resistance in these areas, investigating primarily flies and roaches.

In the initial stages of this problem, it was hoped a constant changing of insecticide would be enough to control resistance. Unfortunately, this theory began to break down when it was found that once insects became resistant to insecticides of one chemical family, they soon became resistant to all members of that group.

In spite of this "horizontal resistance" pattern, it has been possible to develop toxicants of different chemical structure to control temporarily many resistant insects. However, it was obvious that these compounds would not be effective indefinitely. As time went by, discovering such chemicals, and testing and marketing such insecticides became a more and more expensive job. Today it is estimated that it costs over $1.7 million to introduce a new insecticide from the time it's only a gleam in a chemist's eye, until it is available "off the shelf" to the consumer or housewife.

SUCH tremendous expense gives a manufacturer pause to think, but it is complicated by the fact that the useful life of a new toxicant might be only three to five years, it serves to dampen one's enthusiasm even more. This is not theory alone, the results of this reasoning are already being felt.

At one experiment station, they have had a test program on new insecticides going since the war. Each year, half a dozen new toxicants are screened from various manufacturers. Last year only two manufacturers offered compounds . . . this year no manufacturers had insecticides far enough along or felt were worth testing!

A fly swatter is "technologically nonspecific" — or — "anything it hits gets killed." Not so with insecticides. In agriculture, the tremendous growth of chemical insect control has developed the application of specific chemicals for the control of specific insects, while in household and industry specific chemicals are used for household use, space spraying, residual spraying, etc. This serves to complicate the insect control picture even more, and to break down the problem of resistance into a series of inter-related and interlocking problems. Not all insects are resistant to any one insecticide, and in many cases an insecticide may control one group of insects and fail to control another. Under these conditions, we are forced to compare each specific insect, and its particular degree of resistance with each particular insecticide.

This is extremely difficult in the field of agriculture where there are literally hundreds of insects growing resistant in varying degrees to the millions of pounds of various insecticides sprayed on them annually. In some extreme cases, toxicants have been developed and sold profitably for the specific control of one insect found only on one crop in one state! Here problems of safety, continuing effectiveness and cost of manufacture are not important, and certain liberties can be taken in view of the fact that all conventional sprays have failed.

It must be kept in mind that manufacturers of household and industrial insecticides must utilize insecticides originally developed for agriculture. It

* Presented at the 2nd annual meeting of the CMCS, Nov. 4, in Toronto.

is not today economical to develop insecticides for home or industrial use only. Since this is so, it limits even further the choice of the manufacturer, and the possibility of new compounds becoming available for his particular applications.

Therefore our immediate concern is the effect of insect resistance in the home and industry. From this point of view two insects are of primary importance — flies and roaches. The housewife has no way of evaluating "resistant insects." Certainly no one ever returned an aerosol insecticide to the supermarket with the comment, "This doesn't work, because I have DDT-resistant flies in the house." What does happen is that the consumer grows increasingly dissatisfied with a particular spray, and complains that it is not doing its job. This is an insidious situation since even a manufacturer with the best of intentions could be marketing an ineffective product.

The realization that resistant flies and roaches might be the cause of many a product's ineffectiveness has led to a series of studies in which typical consumer aerosol sprays were tested on flies known to be resistant to DDT. These tests were established by Fairfield Chemicals, and were conducted by the Wisconsin Alumni Research Foundation.

The flies chosen for the test occurred naturally at the Fowler Farm in Quincy, Ill. Resistance had built up in this strain as a result of standard control practices over a period of years. The flies were considered to be resistant to DDT, but it was soon found that they exhibited resistance to related compounds as well.

The most precise evaluation of this characteristic developed when four formulae were tested in which only one toxicant was varied, and the results compared with a standard of performance on C.S.M.A. flies against the O.T.A. Each formula maintained the same amount of pyrethrins and piperonyl butoxide (0.2% and 0.5% respectively) with the following results:

2·2% chlorinated hydrocarbons achieved a test mortality of 38% and 47%.

2·2% chlorinated terpenes achieved a test mortality of 45% and 61%.

C.S.M.A. on regular flies was 76%.

These tests show that the flies were differentiating between insecticides. Flies resistant to DDT are resistant to similar products, and in the tests above, the more remote the chemical structure from DDT, the more effective the insecticide.

As the tests progressed, more and more interesting evidence of resistance developed. Actually, reports of resistance to aerosol applications were late in appearing compared to agricultural reports, and it soon became apparent why this was true. A householder wants fast action when controlling flies and chlorinated hydrocarbons usually are slow. To satisfy this requirement, manufacturers add a sub-lethal amount of pyrethrins, or allethrin and acticator such as piperonyl butoxide which kills bugs fast, but add only enough to achieve knockdown and leave the killing job to the chlorinated hydrocarbons.

Resistant insects are still controllable with pyrethrins and for this reason resistant reports on aerosols were slow in appearing, primarily because when chlorinated hydrocarbons became ineffective, sub-lethal doses of pyrethrins and activator still managed to achieve limited insect kill.

To substantiate this suspicion, tests were run comparing formulae which depended primarily on toxicants to which flies had become resistant, and with aerosols using pyrethrins and synergist alone. The results showed pyrethrins and synergist controlled flies grown resistant to synthetic toxicants:

2·3% chlorinated hydrocarbons achieved a test mortality of 6%.

0.25% pyrethrins and 2.00% piperonyl butoxide achieved a test mortality of 86%.

C.S.M.A. on regular flies was 74%.

Throughout this test series, it was shown that aerosols were as susceptible to resistant insects as the conventional sprays, but reports had been delayed due to the small percentage of such knockdown agents as pyrethrins which were customarily used in the formulations.

The use of pyrethrins in aerosol space sprays, however, did not apply to the residual spray field where the control of roaches and ants was a problem. Reports were coming in with greater and greater frequency concerning inability of many residual insecticides to control crawling insects.

This situation was complicated by the fact that in this case pest control operators were using the same toxicants as home owners, thereby hurrying the growth and development of resistant roaches.

One of the best and most effective roach killers is chlordane; initially so effective, it was used almost to the exclusion of everything else. Resistance reports are well known today. Two factors affect the performance of a good household roach spray, initial knockdown and residual effectiveness. Since residual effectiveness is time-consuming to determine, tests were run to see whether differences in performance could be noted between resistant and non-resistant roaches within the first 48 hours.

German roaches which developed in the field at Corpus Christi, Texas, were used and tested at the Fairfield Chemicals Laboratories in Baltimore, Maryland. In one topical test, 22 times more chlordane than normal was required to kill 36 out of 100 roaches.

Compared to normal insects over a 48-hour period, results showed resistant insects to be a very hardy breed. Roach sprays are expected to lay down a residual deposit lethal to insects for weeks. If such a spray fails to kill all insects upon initial application, little can be expected in the weeks following.

Investigation of other toxicants on resistant roaches led to recalling the fact that insects become readily resistant to closely related toxicants, therefore, combinations of chemically dissimilar toxicants were tried. Combinations of organo-phosphorus and chlorinated hydrocarbons were tried, and since chlordane is in the latter category, other toxicants were added to it. The approach used in aerosols was impractical, of course, since pyrethrum will not kill residually, although even so its knockdown properties re-

(*Continued on page* 111)

AEROSOL PRODUCTS in the AUTOMOTIVE FIELD

By Glenn A. Piper*
"Freon" Products Division
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Wilmington, Del.

TEN years ago the aerosol package was a distinct novelty considered by many to be just a "gimmick" that wouldn't last. However, it did last, and the entire concept has grown into a flourishing industry. Aerosol shave cream is a perfect example of this change from novelty status to a common retail item. In 1950, when aerosol shave cream first appeared, many expected it to die a quick death. Last year, 1958, 65 million units of aerosol shave cream were sold, having captured 63% of the total dollar market for shave cream of all types.

The development of aerosol products began early in World War II, as a result of the U.S. Dept. of Agriculture's search for a new and better method of dispensing insecticides to control insect-borne disease among the Armed Forces overseas. Shortly after the war, in 1947, insecticides appeared as the first consumer products in aerosol form. In that year, slightly more than four million aerosol units of the bug-killers and metallic coatings were introduced in aerosol packages, and total production of aerosol units more than doubled. From that time on, the story of aerosol packaging has been one of continued expansion both in number and type of products so packaged, and number of total aerosol units produced.

The production of aerosol units has increased more than a hundred-fold since the first consumer units were introduced, and the end of this expansion is not in sight. From the small beginning of a single consumer product in aerosol form, the range of items has expanded to include all manner of household, personal, industrial, and automotive products—more than 125 different types, in fact, ranging from shoe polishes to shampoos and hair sprays; from fire extinguishers to aerosol charcoal lighters; deodorants to colognes; and lubricants to degreasers and waxes.

STATISTICS and data pertaining to automotive aerosol products are, at the moment, almost nonexistent, though by this time next year, there should be information available to provide a better look into the past, present, and future of automotive aerosols. Valid consumer surveys are needed to enable the automotive chemicals manufacturer to determine what product or products should be packaged in aerosol form. Consumer and dealer likes and dislikes, desires and preferences, must be determined before we can reliably forecast the potential market for automotive products.

Although the "Freon" Products Division of DuPont has conducted market research studies on many aerosol product types covering consumer knowledge, use, and opinion (as well as retail distribution and selling practices), the automotive field has never been studied. We hope to rectify this position in the future and provide the automotive market with authoritative market information to assist this segment of the aerosol industry to grow and prosper.

We do have some information of possible help—but only on one particular product—aerosol car wax.

Aerosol car wax first appeared on the consumer market late in 1950, but met with little success, because of formulation and stability problems. In 1957, S. C. Johnson introduced "Instant J-Wax" to the aerosol market. This was followed by "Turtle Wax," a product of the Turtle Wax Co., and "Instant Simoniz" by the Simoniz Co. They are still the major marketers of aerosol car waxes on a national scale.

The following information on aerosol car wax purchases was developed in a survey. There were too few respondents, however, to obtain statistically reliable comparisons.

Among purchasers of aerosol car wax, two out of three were the males of the households, with housewives responsible for the remainder of the purchases. Dad purchased three times as much as Junior did. It was difficult to determine whether or not he did three times the work. We were unable to get an honest answer to that one. Maybe Mother did the work—we don't know.

Among the brands purchased, three accounted for one-half of the market and each of the three brands was distributed nationally through retail outlets. Although the male makes the majority of aerosol car wax purchases, it was the female respondents who knew the brand purchased in most cases.

*Presented at the second annual meeting of the Canadian Manufacturers of Chemical Specialties Association at Toronto on Nov. 3, 1959.

This survey shows that over one million households bought at least one container of aerosol car wax during the six-month period studied in 1958. Based on various sources of information, the total market for auto polishes and waxes, in all types of packages, is estimated to be possibly 50 million units.

It was also determined that 77% of automobile owners polish their cars or have them polished twice a year or more. 16% have it done at least once per year, while 7% have it done less than once per year. Relate those percentages to the number of car owners and I believe it will be seen that the potential is a bright one.

Survey figures indicate the total market for waxes and polishes of all kinds was $48.1 million in 1958. Dollar sales of aerosol car waxes in the first six months of 1959 were about double the sale of these products in 1958, and aerosol car waxes now enjoy approximately 6% to 10% of the total auto wax market. Considering the extra convenience and ease of application inherent in the aerosol package, it seems possible that aerosols could capture a substantially greater share of this market.

In view of the above information, you would be correct in asking the question: If aerosol auto waxes are the only products for which data are available, are there others worth considering? If so, what are they?

There *are* other automotive aerosol products worth considering, and some already are being marketed. In fact, we now know of about 35 different products, although market data are not available for them. As an example of types which might be of particular interest, I might single out lubricants, polishes and waxes, degreasers, white sidewall cleaner, penetrating oils, ignition sealers, touch-up lacquers and enamels, and spare tire inflators.

Before considering these products further it would be well to take a look at the total automotive market. Although there appear to be a multiplicity of products, this cannot be accepted as justification for existing and potential markets for automotive aerosol products. Survey information as to sales volume and consumer satisfaction is sketchy, particularly for the Canadian market. However, information derived from studies of the U.S. market might be applicable as a valid guide to the Canadian market potential.

The growth in population during the next five to ten years will present an increased consumer market. Purchases of automobiles will no doubt continue to increase, due in no small measure to the increase in two car families.

In 1958, there were 57 million passenger cars registered in the U.S., and it is estimated that by the end of 1959 there will be 59 million. In 1958, Canada had a little over 3½ million registered passenger cars. If the same percentage increase used in the estimate for registration in the U.S. is applied, this could mean a total of approximately 3¾ million registered passenger cars in Canada for the year 1959. Registration figures for trucks, buses, and tractors in Canada were not available. In the U.S., bus and truck registrations totaled 11.2 million in 1958. Tractor registrations totaled 4.6 million.

The sale, service, and repair of vehicles is provided by franchised and non-franchised passenger car dealers, automotive repair shops, gasoline service stations, and the owners themselves. In the U.S. there are 41.4 thousand franchised passenger car dealers, 20.1 thousand non-franchised dealers, 181.7 thousand gasoline service stations, and 79.7 thousand automotive repair shops. In Canada there are 36,421 retail service stations. Figures on dealers and repair shops were not available.

This then is the market potential and probable distribution pattern for automotive aerosol products in the so-called automotive chemical field.

Figures representing the number of vehicle owners are not included, since it can be readily seen that this information would be difficult to obtain. This information would, however, give us the consumer purchase potential for vehicle owners.

An evaluation of the distribution and sale of automotive aerosol products should be made to determine the most effective marketing pattern for aerosols.

In the automotive chemicals field the so-called "chain-of-command" to reach the consumer begins with the manufacturer and extends through the distributor to the wholesaler and finally the automotive supply store or gasoline service station. Their target is the purchaser and consumer of the product.

Let's begin with the most important segment—the consumer. From survey data, it has been determined that only one out of five driving into a service station for gasoline gets out of his car! To influence this one person and the other four to buy a particular product or group of products would require extensive advertising, promotion, and product appeal. Three out of four service stations "sell only the products that are in demand." The station attendant is possibly a good mechanic but *he is not a salesman.*

To enable the service station owner or attendant to become a salesman without training or effort on his part, pre-selling by the manufacturer at the consumer level through advertising, promotion, merchandising plans, and attractive prices are required. If the item is a novelty product, it will quite often sell at least once regardless of cost, provided, of course, that the price is within reason. The mill cost, or manufacturing cost, and the "mark-up" will have to be maintained at a level to make the retail price attractive to the consumer.

No matter how well the advertising, promotion, and cost are handled, automotive aerosol products may yet fail to make the grade if the potential volume for a single product type is not great enough to be economically practical. Other aerosol product failures result from such product deficiencies as poor formulation and insufficient testing prior to marketing. The product or products may not be satisfactory or justifiable aerosol applications. They may not provide sufficient advantages over the package already available; and, as previously mentioned, insufficient advertising and/or promotion also will result in failure. Manufacturers or marketers who consider all of these factors usually are successful in

marketing their aerosol even though the market itself might be limited.

An answer as to where and how automotive aerosol products should be marketed might be found in information developed on the sales volume and distribution of automotive parts, accessories, tools, equipment, and automotive supplies and chemicals. The figures reported are for the year 1957, taken from a review made in November 1958. Total figures for 1958 should be available shortly.

In 1957, the top 30 product lines distributed by automotive jobbers in the U.S. domestic market were listed in the order of their sales volume. Spark plugs were first in volume of sales, with anti-freeze listed in the ninth position. Automotive chemicals — the category into which aerosols would fall — were listed 11th in sales volume. Ten years ago automotive chemicals were 18th in sales.

Of the thirty top products, spark plugs accounted for 5½% of total sales. Anti-freeze in ninth place represented a little more than 3⅓% of the total sales, while automotive chemicals in 11th place accounted for a little over 2½% of sales.

Jobber volume is broken down into the following percentages: parts, 62.9%; supplies, 13.5%; tools and equipment, 10.3%; accessories, 7.7%; and non-automobile lines, 5.6.% Dollar-wise, the U.S. domestic sales of parts and accessories amounted to 2 billion, 40 million dollars. By percentage calculation, we can determine the automotive supplies and chemicals potion to amount to approximately $400 million.

In Canada, sales of parts and accessories in 1956 amounted to $386½ million. In 1957 this dollar volume increased to $394⅓ million. If the U. S. percentage for supplies for chemicals is applied, a figure of approximately $76 million could be the volume of sales of automotive supplies and chemicals in Canada for 1957.

Fifty per cent of the automotive chemicals' business is done by auto accessory stores, hardware, food, and department stores. The auto accessory store accounts for the larger portion of 26%, the hardware store, 10%; the food store, 8%; and the department store, 6%. Although these four types of outlets do 50% of the automotive chemicals' business, their total accounts for only 8% of the entire automotive wholesale business.

Garages, fleet use, industrial use, farm and marine sales account for 47% of the automotive wholesale business, with garages having 26% and fleet use having 12%. However, this segment of the automotive market buys only 8% of the automotive chemicals sold by the automotive wholesaler.

Gasoline stations and car dealers account for 45% of the wholesale purchases, with gasoline service stations having 25%, and car dealers, 20%. These two outlets buy 42% of the automotive chemicals sold by the wholesaler, with the gasoline service station having the lion's share of 40% and the car dealer only 2%.

In view of this survey information, where can we expect most of new automotive chemical business in 1960, '61, and '62? It would appear that jobbers, gasoline service stations, repair shops, hardware, and department stores provide the best opportunity. But there also are the new trends in automotive chemical distribution which must be considered. Supermarkets, farmers' markets, discount department stores, and shopping centers are now considering entry into the automotive chemical field. Just recently it was reported that the Food Fair chain, with 368 stores in the U. S., is opening gasoline service stations adjacent to four of their Philadelphia food stores. Initially they'll sell only gas and oil in their service stations, with the stores themselves continuing to handle the automotive chemicals such as waxes, polishes, and cleaners. Grand Union, another food supermarket chain with 472 stores, is planning a similar program, but is watching the Food Fair results.

Another new trend in automotive chemicals marketing is the marine field, with a current potential of over 7 million pleasure craft in the U. S., a total which does not include the commercial marine field. As stated earlier, the auto parts and accessories market has a total dollar sales volume of well over 2 billion dollars. The marine market is an 11 billion dollar market. On a percentage basis, the dollar volume potential for automotive chemicals in the marine field should warrant evaluation and investigation.

Our Du Pont aerosol survey results have shown and continue to show that more than twice as many people prefer the aerosol method of application —*Once They Try It.*

Consumers find that aerosols do difficult jobs faster, more easily, and more efficiently than conventional methods. This, too, should apply to the automotive aerosol field. Experience with other aerosol products has shown that, as more and more marketers enter the field with increased promotional efforts, consumer awareness and use of aerosols invariably accelerate. High preference for aerosols leads to high market penetration once the consumer becomes aware of a product in aerosol form.

Automotive aerosol products are presently available for use "from the wheels up." If you have ever had a flat tire while traveling, an aerosol tire inflator could be the difference between hiking or riding to the nearest garage or service station. The product itself consists of nothing more than a simple container of propellant 12 with an

(*Continued on Page* 120)

This and the preceding two papers comprise three of the four papers delivered at the Canadian Manufacturers of Chemical Specialties Meeting. A fourth, titled "Perfumery Problems with New Aerosols," by Victor DiGiacomo, will appear in the January issue of Aerosol Age.

Ampruf Paints...

the aerosol package is key to sales success

By Edward J. Meier

WITH company sales pushing well past one million aerosol cans this year, Ampruf Paint Co., El Monte, Calif., can credit itself with good judgment in choosing the aerosol package as its door-opener to the growing market for paints in the booming economy of Southern California and the 13 western states.

One of the pioneers in aerosol paint packing, the owners of Ampruf (then associated with American Waterproofing Co., Brooklyn, N. Y.) began filling aerosol cans about 8 years ago. The El Monte plant began operations in 1950 and has grown from an output of 200 gallons per day to the present 7,000 gallons per day. Ampruf was formed five years ago with Robert Senser as president and Sheppard Weissman as vice-president.

The highly competitive paint business has been a market well worth cultivating in the western states, where home and industrial building was — and still is — hard pressed to keep pace with demand brought about by population increase. It was a challenging job for Ampruf to become well-known quickly among paint dealers and the do-it-yourself people also. The job was accomplished principally through aggressive merchandising of aerosol paints aimed at the "impulse" or point-of-purchase buyer.

The company believes that success in the aerosol paint business for them means developing many products for very specific purposes and accentuating the "impulse" sales approach. Cost must be held down, Mr. Sencer emphasizes, since an impulse buyer who is attracted to a product at 98 cents per can (and may even buy many different types for specific uses) will deliberate and perhaps decide against the purchase if it is priced at $1.59.

Typical example is the case of aerosol screen enamel. Many years ago, the company brought out an aerosol screen enamel with a suitable viscosity for application, but it proved to be too expensive for the average buyer as it had to be sold for $1.79 per 16-ounce can. The product was market-tested in the Los Angeles metropolitan area with little success. Five months ago, the company once again introduced (this time with good promotion behind it) a new screen enamel selling to realers at 59 cents per can, who in turn retail it for 98 cents. Ampruf offers the enamel in green, black or aluminum colors and the success of the product is indicated by the orders and re-orders from leading southern California department stores, from all over the United States and foreign countries.

Ampruf's list of new aerosol products introduced to the market this year numbers more than 15. Included are; a new stencil paint sold predominately to stationery stores (available in several colors); a ping-pong, table tennis green for resurfacing old tops or painting new wood; an aquamarine paint for fishtanks; a paint for white sidewall tires; a new Christmas snow product, with fire-retardant properties for the holiday season; and a hot-rod touch-up primer.

Another new product not yet introduced but scheduled for marketing early this winter is an upholstery and rug spot cleaner. To be known as "Multi-Kleen," this product has been sold effectively for years as a liquid under a different name, but has had little promotion behind it. With an aerosol package, Ampruf sees bright prospects for "Multi-Kleen."

The company markets and sells in the 13 western states, although orders come in from all over the world. Ampruf filled an order recently from the Chinese Nationalist Navy for $500,000 worth of paint. The company maintains dealerships in all 13 states in addition to having a staff of 14 outside salesmen.

Ampruf uses Aeropak, Chicago, and Western Filling and Lawson Chemical Co., in Los Angeles, to custom fill its

(*Continued on Page* 124)

CSMA MEETS IN WASHINGTON

Aerosol Division Program

Tuesday Morning, Dec. 8

The Potential for the Aerosol Market
by Ralph A. Crane, market research manager "Freon" Products Division
E. I. du Pont de Nemours & Co.
Wilmington, Del.

What Grocery Chains Think of Aerosols
by Gerson Barnett, purchasing director
Giant Food Stores
Landover, Md.

What Nielsen Surveys Show About Aerosol Product Acceptance, Sales, and Movement in Drug and Grocery Stores
by James O. Peckham, executive vice-president
A. C. Nielsen Co.
New York, N. Y.

Introducing a New Aerosol Product to The Consumer Market
by Harold L. Schafer, president
Gold Seal Co.
Bismarck, N. D.

Building Greater Aerosol Sales Through Better Packaging
by William C. Sims, associate editor
Modern Packaging
New York, N. Y.

1959 *Aerosols Packaging Awards*
by F. C. Lodes, president
Lodes Aerosol Consultants, Inc.
(chairman Aerosol Awards Committee)

Wednesday Afternoon, Dec. 9

Report of Aerosol Division Chairman
by E. J. McKernan, president
E. J. McKernan Co.
Elgin, Ill.

Report of Chairman, Scientific Committee
by Walter A. Beard, Jr., research director
Risdon Mfg. Co.
Naugatuck, Conn.

Report of Program Committee
Report of Market Development and Publicity Committee
Status and Future of Aluminum Aerosol Containers
by R. H. McCarthy, Jr., director of sales
Bradley-Sun Division, American Can Co.
Hillside, N. J.

Solubility Symposium

A Study of Glycol-Alcohol Propellant Systems
by Paul A. Sanders
"Freon" Products Division Laboratory
E. I. du Pont de Nemours & Co.

Effects of Fluorinated Propellants and Methylene Chloride on Various Plastics
by James A. Brown
Genetron" Aerosol Technical Laboratory
General Chemical Division
Allied Chemical Corp.

Low Cost Water-Based Aerosols
by D. C. Geary
"Ucon" Aerosol Technical Service Laboratory
Union Carbide Chemicals Co.

Solubility Parameters and Their Application to Aerosols
by Allen B. Reed, Jr.
"Isotron" Technical Service Laboratory
Pennsalt Chemical Co.

A symposium on the marketing of aerosol products will highlight the 46th annual meeting of the Chemical Specialties Manufacturers Association to be held at the Mayflower Hotel, Washington, Dec. 7-9. The symposium will feature talks by Harold L. Schafer, president of the Gold Seal Co., Bismarck, N. D.; James O. Peckham, executive vice-president of A. C. Nielsen Co., New York, and Gerson Barnett, purchasing director, Giant Food Stores, Landover, Md. All are prominent executives in the marketing field and will speak at the CSMA convention for the first time.

This symposium, scheduled for the morning program of Tuesday, Dec. 8, will be climaxed by the announcement of the 1959 Aerosol Packaging Awards by Frederick G. Lodes, president of Lodes Aerosol Consultants, Inc., New York, and chairman of the Aerosol Package Awards Committee. Winners of the best package in each of 11 product categories will be given bronze plaques.

Mr. Schafer will speak on "Introducing a New Aerosol Product to the Consumer Market"; Mr. Peckham on "What Nielsen Surveys Show About Aerosol Product Acceptance, Sales, and

(*Continued on Page* 113)

E. J. McKernan
Aerosol Division Chairman

an improved instrument for

THE DETERMINATION OF AEROSOL CHILLING EFFECTS

IN a previous report* we described a method for the determination of the relative chilling effects of aerosol propellants and formulations. The method involved spraying the aerosol formulation to be tested onto an aluminum surface which covered an iron-constantan thermocouple. The temperature-drop detected by the thermocouple was recorded by a potentiometer-pyrometer. The experiences gained by this initial study, suggested the design of an improved instrument.

The ideal instrument for aerosol chilling effect measurements should provide these facilities which were lacking in the earlier instrument.

1. An aerosol container which allows the use of the same valve throughout any series of measurements. This is necessary because valves of identical design vary sufficiently to cause unequal delivery rates of even the same formulation. Such minor variations in delivery rates yield misleading results.
2. A device to allow precise mechanical timing of spray duration, for a variation of a fraction of a second in timing the spray can cause a significant difference in temperature-drop readings.
3. A device to control the distance through which the actuator button is depressed. Exact duplication of this distance must be obtainable each time the container is removed for refilling and replaced in the instrument for the next test. Experiments have revealed that without the aid of a mechanical stop the operator cannot depress the actuator uniformly in successive trials, and temperature readings are not reproducible.
4. A device which makes possible precise setting of the target in three dimensions. The target should also be constructed so that temperature-drop readings can be made at measured distances from the thermocouple as well as directly over the thermocouple. Through such an arrangement, the chilling effect over the entire area can be measured. In our opinion, this approach gives a truer picture of chilling potential than does measurement of chill at a single point in the spray pattern — the procedure which was followed in our initial work.

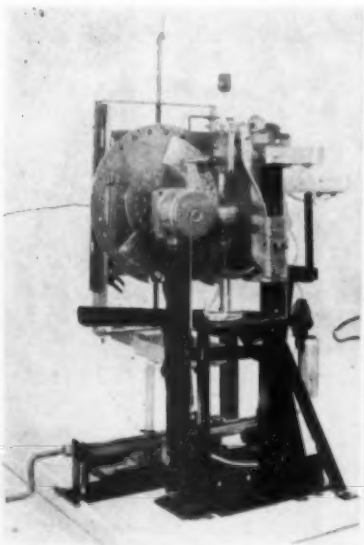
In addition to the requirements described above, the instrument must be equipped to hold the aerosol container immovably. It must also provide a plunger arrangement for actuating the valve so that only vertical movement of the actuator and valve stem is possible. Rotation of the actuator button or bending of the valve stem from the perpendicular must be avoided.

An instrument has been designed which meets each of these requirements (Fig. 1).

The instrument is fitted with a six ounce Fischer and Porter compatibility

Aerosol Age 4, 36 (May, 1959).

FIG. 1



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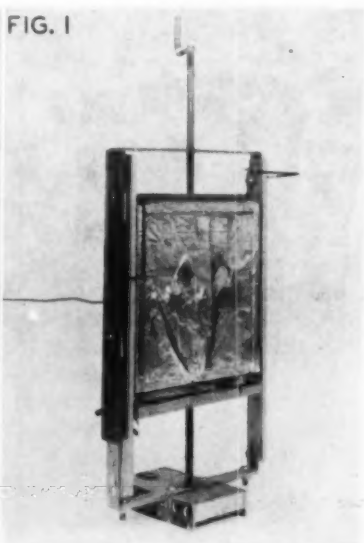

TARGET

By Theodore F. Dunne
Technical Service Department
General Chemical Division, Allied Chemical Corp.
Edgewater, N. J.

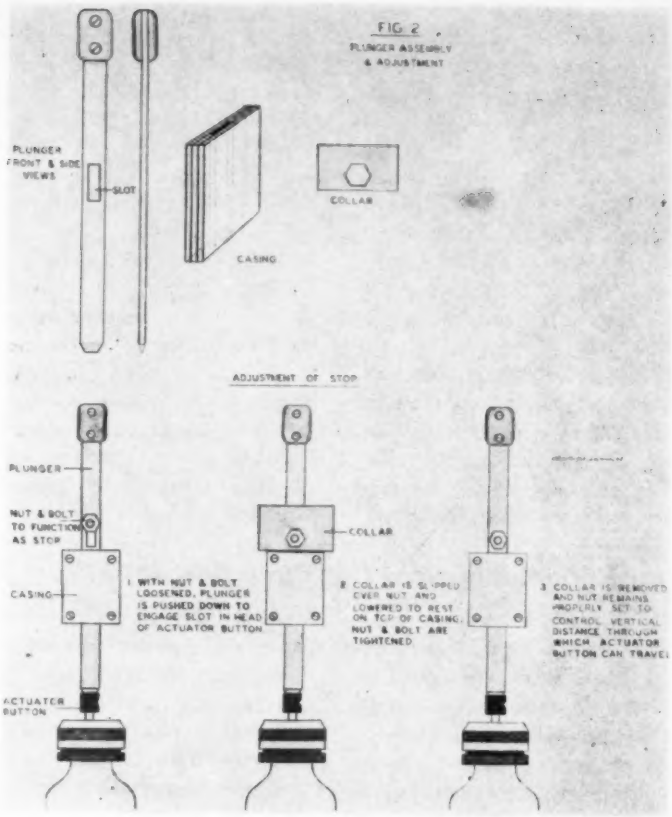
FIG 2
PLUNGER ASSEMBLY & ADJUSTMENT
PLUNGER FRONT & SIDE VIEWS
SLOT
CASING
COLLAR
ADJUSTMENT OF STOP
PLUNGER
NUT & BOLT TO FUNCTION AS STOP
CASING
ACTUATOR BUTTON
1 WITH NUT & BOLT LOOSENED, PLUNGER IS PUSHED DOWN TO ENGAGE SLOT IN HEAD OF ACTUATOR BUTTON
COLLAR
2 COLLAR IS SLIPPED OVER NUT AND LOWERED TO REST ON TOP OF CASING. NUT & BOLT ARE TIGHTENED
3 COLLAR IS REMOVED AND NUT REMAINS PROPERLY SET TO CONTROL VERTICAL DISTANCE THROUGH WHICH ACTUATOR BUTTON CAN TRAVEL

ube. These containers are furnished with screw-on caps which permit the use of the same valve for any number of test formulations or propellants. The bottle is held immovably on a platform by a metal collar which can be tightened with a nut and bolt.

The plunger for actuating the valve slides in a casing attached to the superstructure of the instrument in such a way that it can be moved in three dimensions, and centered above the actuator. The plunger fits snugly into the casing and can move only in a strictly perpendicular plane. To control the vertical distance through which the plunger can travel, a nut and bolt is inserted through a slot in the plunger, and functions as a stop. To adjust the stop at its proper setting, the plunger, with the nut and bolt loosened, is inserted into the casing and pushed down to contact a slot in the top of the actuator button. A collar is then placed over the bolt and lowered until it contacts the top of the casing (See Fig. 2). The nut and bolt are then tightened into place. When the collar is removed the stop is left in proper adjustment.

In order to precisely time spray duration, a slotted wheel is attached to a motor adjusted to a desired rpm by means of a rheostat. The slot is cut to a width of 1.5 inches and to a length equal to approximately seven-eighths of the wheel diameter. The slotted wheel is positioned so that it revolves between the aerosol container and the target. When the aerosol is actuated, the spray can pass beyond the wheel to the target only while the slot is passing the line of spray. By properly adjusting the rpm's of the wheel and the length of the slot (accomplished by attaching aluminum foil over the unwanted portion), the time during which the aerosol spray hits the target can be precisely adjusted and kept constant throughout an entire series of experiments. It is a simple matter for the operator to begin the spray before the slot comes into position, and just as simple for him to continue the spray until the solid portion of the wheel has blocked the spray.

In the earlier study of chilling effects, an attempt was made to aim the spray so that the center of the pattern would strike directly over the thermocouple in the target. The target was then sprayed for the desired period of time, and the temperature-drop read. This temperature drop at one point only, was taken as the measure of the chilling effect. This procedure was undependable for three reasons. First, there was no way of knowing whether or not the center of a spray pattern is *the most chilling*. The new instrument proved this assumption correct for experiments performed to date. Secondly, aiming of some sprays is difficult, and the old method gave no assurance the thermocouple was located in the center of the spray pattern. Thirdly, the method completely ignored the chilling effect exerted on other portions of the target hit by the aerosol spray.

To overcome these shortcomings, a target was constructed so that it could be moved vertically, from left to right, and toward or away from the container.

The vertical, and left and right movements, are controlled by long bolts with slow threads to which the target is attached. By turning the bolts, the target can be moved in the desired direction. The movement toward and away from the aerosol container is accomplished by sliding the stand of the target along a platform. When the target is set at the proper distance from the aerosol container, it is tightened in place with a thumb screw.

The target consists of a 7½inch square board. A lead heating coil is

an improved instrument for

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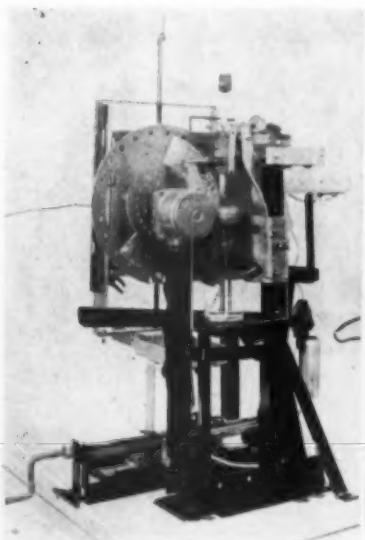

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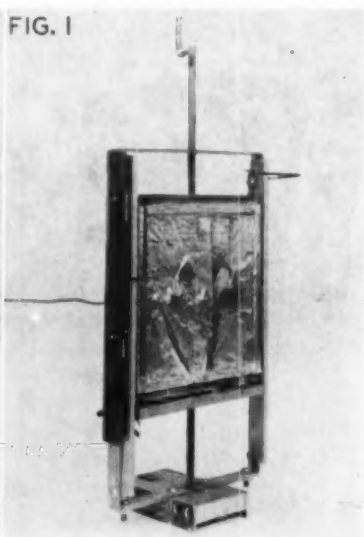

TARGET

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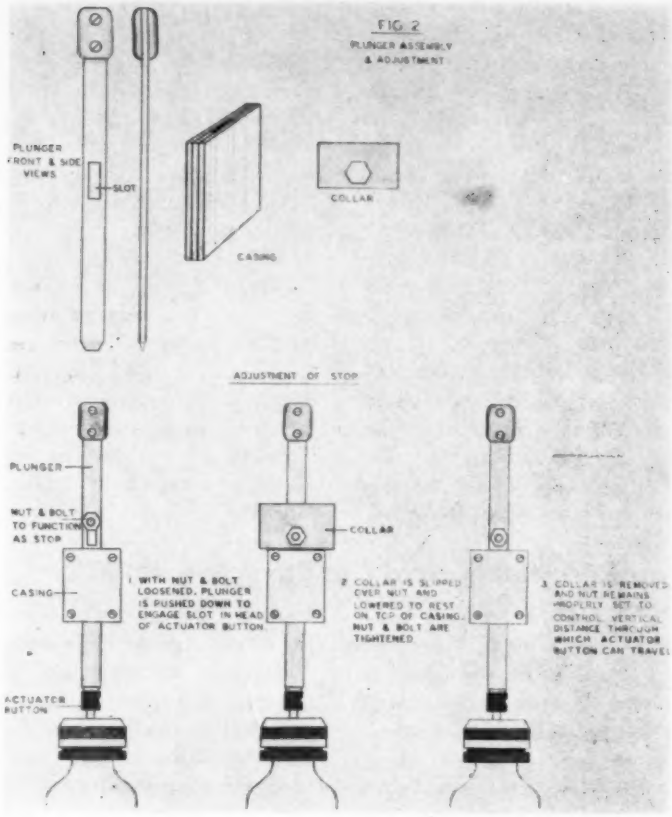
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3 COLLAR IS REMOVED AND NUT REMAINS PROPERLY SET TO CONTROL VERTICAL DISTANCE THROUGH WHICH ACTUATOR BUTTON CAN TRAVEL

ube. These containers are furnished with screw-on caps which permit the use of the same valve for any number of test formulations or propellants. The bottle is held immovably on a platform by a metal collar which can be tightened with a nut and bolt.

The plunger for actuating the valve slides in a casing attached to the superstructure of the instrument in such a way that it can be moved in three dimensions, and centered above the actuator. The plunger fits snugly into the casing and can move only in a strictly perpendicular plane. To control the vertical distance through which the plunger can travel, a nut and bolt is inserted through a slot in the plunger, and functions as a stop. To adjust the stop at its proper setting, the plunger, with the nut and bolt loosened, is inserted into the casing and pushed down to contact a slot in the top of the actuator button. A collar is then placed over the bolt and lowered until it contacts the top of the casing (See Fig. 2). The nut and bolt are then tightened into place. When the collar is removed the stop is left in proper adjustment.

In order to precisely time spray duration, a slotted wheel is attached to a motor adjusted to a desired rpm by means of a rheostat. The slot is cut to a width of 1.5 inches and to a length equal to approximately seven-eighths of the wheel diameter. The slotted wheel is positioned so that it revolves between the aerosol container and the target. When the aerosol is actuated, the spray can pass beyond the wheel to the target only while the slot is passing the line of spray. By properly adjusting the rpm's of the wheel and the length of the slot (accomplished by attaching aluminum foil over the unwanted portion), the time during which the aerosol spray hits the target can be precisely adjusted and kept constant throughout an entire series of experiments. It is a simple matter for the operator to begin the spray before the slot comes into position, and just as simple for him to continue the spray until the solid portion of the wheel has blocked the spray.

In the earlier study of chilling effects, an attempt was made to aim the spray so that the center of the pattern would strike directly over the thermocouple in the target. The target was then sprayed for the desired period of time, and the temperature-drop read. This temperature drop at one point only, was taken as the measure of the chilling effect. This procedure was undependable for three reasons. First, there was no way of knowing whether or not the center of a spray pattern is *the most chilling*. The new instrument proved this assumption correct for experiments performed to date. Secondly, aiming of some sprays is difficult, and the old method gave no assurance the thermocouple was located in the center of the spray pattern. Thirdly, the method completely ignored the chilling effect exerted on other portions of the target hit by the aerosol spray.

To overcome these shortcomings, a target was constructed so that it could be moved vertically, from left to right, and toward or away from the container.

The vertical, and left and right movements, are controlled by long bolts with slow threads to which the target is attached. By turning the bolts, the target can be moved in the desired direction. The movement toward and away from the aerosol container is accomplished by sliding the stand of the target along a platform. When the target is set at the proper distance from the aerosol container, it is tightened in place with a thumb screw.

The target consists of a 7½inch square board. A lead heating coil is

imbedded in a circular hollow cut into the center of this board. The heating coil, which is controlled by a rheostat, maintains the target at skin temperature level, i.e., between 90-95°F. An iron-constantan thermocouple is attached over a piece of cardboard covering the center of the heating coil. A thin sheet of household aluminum foil is attached in place over the entire front of the target. The aluminum foil is pressed against the thermocouple so that close contact is obtained.

To measure the chilling effect of a propellant or formulation, the aerosol container and the plunger mechanism are properly adjusted in place. The length of the wheel slot and the speed of revolution of the wheel are adjusted to give the desired spray duration. The target is set at the desired distance from the aerosol container and tightened into place. With the wheel motionless and the slot in position to allow the spray to hit the target, the latter is adjusted vertically and horizontally so that the thermocouple appears to be in the direct center of the spray pattern. The wheel is set in motion and the aerosol is sprayed upon the target. The temperature-drop is read. By moving the target, readings are taken at centimeter intervals in a circular pattern around the initial reading, until an area approximately 4 inches in diameter has been covered. All the readings for the area are recorded on a diagram (See Fig. 3).

FIG. 3
TYPICAL TEMPERATURE PATTERN

CHILLING EFFECT OF PROPELLANT 12/114A AT 4" DISTANCE, .5 SEC. SPRAY DURATION, .018" VALVE ORIFICE, 50-50 MIXTURE

			4°	3°	3°			
		3°	4°	4°	4°	4°	3°	
	3°	4°	7°	9°	7°	5°	4°	3°
3°	4°	6°	16°	16°	10°	6°	4°	3°
3°	4°	8°	22°	36°	16°	7°	4°	3°
3°	4°	7°	12°	15°	11°	5°	4°	3°
	3°	4°	5°	6°	7°	5°	4°	3°
		3°	4°	4°	4°	4°	3°	
			3°	3°	3°			

TEMP. = F°

The pattern of readings over an area which is obtainable with the new instrument overcomes the deficiencies of the old method which were described above. The center of the spray pattern and the most chilling point are automatically revealed by the diagram of temperature readings. Also, the new method has the added advantage of determining the temperature changes which occur throughout virtually the entire spray pattern. A truer estimate of the chilling potential of an aerosol spray is thereby attained.

Thus far, only a series of propellant 12/114a mixtures has been studied, but the data obtained is sufficient to evaluate the efficiency and accuracy of the instrument. The data obtained with this new instrument is reproducible to within ± 0.5 degrees for any particular point in a spray pattern. Different batches of the same aerosol formulation have been tested on this instrument for chilling effect to further test the reproducibility of results. The average chills found for the different trials have agreed within ± 0.5°F. or less. The average chill is calculated by adding all temperature drops and dividing by the number of readings.

It is our plan to use the new instrument in seeking new and more extensive data on the chilling effects of pure aerosol propellants and formulations. We will be glad to provide others in the industry with the details of design of this instrument which it is felt offers the aerosol formulator a method of accurately measuring the chilling effects of any spray-type aerosol.★

Major Pharmaceutical Co. Buys Aerosol Filler

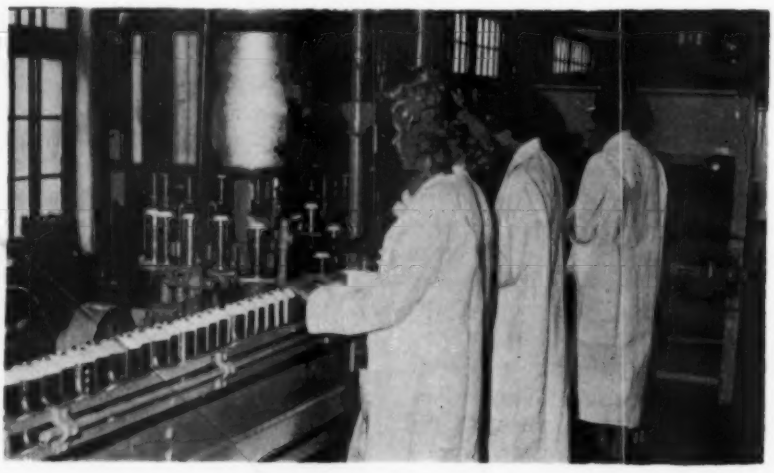
STRONG Cobb Arner Inc., Cleveland, leading custom manufacturer of pharmaceutical and allied food and chemical products, has entered the aerosol packaging field through the acquisition of the assets and business of PanPak, Inc. The acquisition is termed by the SCA management to be a major step in the expansion of its services to the pharmaceutical and allied industries.

"We are fortunate to discover a leading aerosol organization which has grown on the basis of creative formulation and adherence to the high quality control standards of our pharmaceutical customers," Dr. Niels C. Klendshoj, Strong Cobb Arner board chairman, stated. "Historically, both the Arner and the Strong Cobb companies are pioneers in dosage forms development and production. We anticipate that the combination of SCA and PanPak experience and facilities will place us in a sound position to serve the pharmaceutical and allied food and chemical industries in the fast growing field of aerosol applications, particularly of ethical and ocer-the-counter drug products."

Founded in 1954 as "Allied Professional Associates" by Dr. Joseph M. Rait to produce a dental anesthetic in aerosol form, the company name was changed to PanPak late last year. PanPak will operate as a wholly-owned subsidiary of Strong Cobb Arner, with

(*Continued on Page* 124)

One of four PanPak lines, this one is a rotary unit.



American Can (left), Crown (center) and Victor Metal Containers were among the exhibitors showing a wide range of aerosol container types.

Aerosols Win Wide Attention at Canadian Packaging Show

AEROSOL containers in tin-plate, aluminum, and coated-glass-in-metal were the dominant feature for aerosol industry visitors to the 8th Canadian National Packaging Exposition, which was held Nov. 3-5 at the Automotive Building at Toronto's Exposition Park. By some strange whim of the calendar, the exposition was held during the same time (and in the same city) as the meeting of the Canadian Manufacturers of Chemical Specialties Association, thus keeping some individuals from the pressurized packaging industry away from the packaging exposition during its first two days. However, on the evening of Nov. 4 and all during the day of Nov. 5, aerosol industry attendance appeared fairly heavy.

Crown Cork & Seal Co., Ltd. Toronto, Crown's Canadian subsidiary, had the largest and the most impressive of the aerosol booths. Crown used pretty female demonstrators to show prospective aerosol customers exciting new uses for the aerosol container. Three of the five small aerosol use demonstrations used by Crown in Chicago at the National Packaging Show earlier this year were repeated in Toronto, and the Canadian visitors saw pressurized coffee, pancake mix, and tire inflators.

American Can Co. of Canada, Ltd., Hamilton, Ont., devoted a considerable portion of its large booth to aerosol containers. Attention was focused on Canadian rather than American packages, and much of the display consisted of large numbers of pressurized foods, industrial products, etc., presently on the Canadian consumer market.

Another huge booth at least partially devoted to aerosols was that of Continental Can Co. of Canada Ltd., Toronto, which showed the diversification of its container line, rather than samples of the products packaged in its containers.

Consolidated Bottle Co., Ltd., Montreal, still another major exhibitor at the show, offered a double-barrelled entry into the consumer market. With probably the first Victor aluminum containers seen in public exhibition in Canada, Victor Metal Containers Ltd. utilized part of Consolidated's booth to show off some of its newest aluminum extrusions. Most of the remainder of the booth was used to show the many conventional and aerosol containers (intended mainly for perfumes) manufactured by Richford Corp., for which Consolidated is the Canadian agent.

One-piece aluminum aerosol containers were also shown by Modern Containers Ltd., Scarborough, Ont. The containers on display were made under a license from Peerless Tube.

Cover caps came in for some minor attention at the three-day show. Twinpak, Ltd., Montreal, showed some of the unbreakable plastic stack cap line of Gilbert Plastics, Inc. Aluminum Goods Ltd., Toronto, through its closure division, exhibited cover caps, as did Aluminum Co. of Canada, Ltd. and Armstrong Cork Canada, Ltd.

Aerosol packaging machinery was at a minimum at the exposition. The Perry "Accofil" powder filling machine was shown in operation by Packaging Laboratories and Designing Ltd., Montreal, agent in Canada for Perry's equipment. Chisholm Sales & Engineering Co., Niagara Falls, Ont. demonstrated its "New Way" labeler for aerosols as well as a vacuum filler that may be applicable to certain aerosol ingredient uses.★

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College Pharmaceutical Congress

St. John's University College of Pharmacy will hold its second annual Congress for Pharmacists on March 17, 1960. The one-day congress is open to anyone in the pharmaceutical field, including those in hospital, community, and industrial pharmacy, and in medical retailing.

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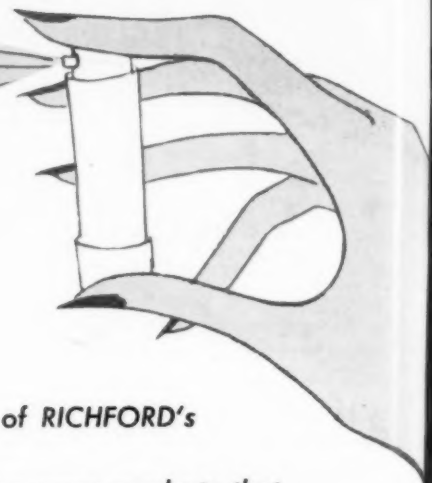

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Some of the aerosol products on the market which employ Diazinon.

Diazinon

as an aerosol insecticide material

By D. B. Whitlow
Geigy Agricultural Chemicals Division
Geigy Chemical Corp.
Ardsley, N. Y.

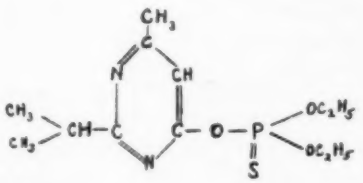
THE widespread resistance of the German cockroach to chlorinated hydrocarbon insecticides has made the selection of an effective insecticide for an aerosol spray of major importance to the manufacturer desiring to maintain continued consumer acceptance of his product. To combat the resistant German cockroach, manufacturers are making greater use of organic phosphate insecticides as the active ingredient in their aerosol products.

Diazinon, an organic thiophosphate insecticide of moderate mammalian toxicity, has been used since 1956 by professional pest control operators to achieve control of resistant German cockroaches. Evidence of its acceptance for resistant roach control is the fact that it is now the most widely used organic phosphate insecticide in the pest control industry.

First approved for use in pressurized household sprays in December, 1957, Diazinon has found increased use in these products, due to certain advantages over other organic phosphate insecticides and over the chlorinated hydrocarbon insecticides commonly used in pressurized household sprays. The principal advantage of Diazinon is its high degree of control over resistant roaches. This control, shown in numerous laboratory and field tests, has been proven in the more than three years of use by pest control operators. Also important are its residual properties. When properly applied, Diazinon sprays remain effective up to 30 days, (and in some instances have given longer control of a number of household pests).

The wide range of insects controlled by Diazinon is yet another advantage in household sprays. Diazinon at 0.5%, by weight, concentration, in combination with synergized pyrethrins will give effective, long-lasting control of cockroaches (including the resistant German variety), ants, silverfish, spiders, crickets, carpet beetles, and brown dog ticks indoors; and flies, mosquitoes, wasps, flying moths, fleas, chiggers, ants and brown dog ticks out of doors.

Diazinon is 0,0 diethyl 0-(2-isopropyl-4-methyl-6-pyrimidinyl) phosphorothioate, and has the following structure:



The pure product is a colorless liquid which boils at 83-84°C under 0.002 mm. Hg. The technical product, 92-96% pure, is pale to amber brown. It is soluble up to 0.004% in water and dissolves readily both in petroleum solvents and in alcohol, xylene and acetone.

The following table gives the vapor pressure and volatility of Diazinon.

Temperature °C	*Vapor Pressure mm Hg*	*Volatility mg/m³*
10	4.6×10^{-5}	0.8
20	1.4×10^{-4}	2.4
40	1.1×10^{-3}	17.6
60	6.6×10^{-3}	96.0
80	3.3×10^{-2}	460.0

Toxicological tests have shown Diazinon to be of moderate toxicity to humans and domestic animals. The acute oral LD 50 of Diazinon to rats has been determined to be about 125 mg/kg, when administered as technical Diazinon. Administered as 25% wettable powder, the acute oral LD 50 was found to be 264.5 mg/kg in terms of technical Diazinon.

Two year feeding tests on rats were conducted to determine its chronic oral toxicity. In these studies, levels of 10 ppm, 100 and 1,000 ppm of Diazinon were maintained in their diets. There

were no significant differences in mortality, food consumption, or signs of toxicity being evident in the experimental animals, as compared with their respective controls. No gross or microscopic pathological symptoms were noted which could be attributed to the dietary feeding of Diazinon during the two year period.

A 1% solution of Diazinon in "Deobase" was applied in five consecutive daily doses to the skin of guinea pigs in tests designed to determine possible dermal toxicity hazards. No mortality or evidence of gross toxicity resulted, and there was no inhibition of plasma or red blood cell cholinesterase activity.

Diazinon has a relatively low vapor pressure, which reduces the possibility of injury due to inhalation. Five minutes after the inside of a shed had been sprayed with a 1% Diazinon spray, there was less than one part of Diazinon per million parts of air within the enclosed shed. Fowl, dogs and rats placed in the shed immediately after spraying were unaffected.

Recent laboratory tests conducted by the Department of Entomology, Rutgers University, with pressurized sprays containing various ingredients, have shown a combination of Diazinon and synergized pyrethrins to be the most effective of the insecticides used against German roaches.

The Rutgers' tests were conducted by spraying plywood panels with pressurized spray cans for intervals of 2, 5, and 10 seconds. The cans were placed in a special apparatus to give as even a coverage to each panel as possible; however, since there was a variance in area covered and intensity of spray among the cans, the panels were not identical in respect to the amount of spray received at each time interval. The panels were weighed prior to application of the sprays and reweighed after spraying to gain an approximation of the dosage corresponding with each time interval. Spraying for 2, 5 and 10 seconds gave deposits of up to 0.2 g; 0.2 to 0.6 g and 0.7 to 1.5 g respectively. Formulations used in the tests were as follows:

Table II

Treatment / *Days after treatment*	*% Mortality after 24 hours* 1	7	14	28
Formulation 1				
2 seconds	10	5	—	—
5 seconds	7.5	2.5	—	—
10 seconds	15	2.5	—	—
Formulation 2				
2 seconds	60	62.5	57.5	17.5
5 seconds	65	80.0	82.5	20
10 seconds	90	72.5	67.5	32.5
Formulation 3				
2 seconds	100	62.5	50	22.5
5 seconds	100	92.5	77.5	52.5
10 seconds	100	100	75	62.5

Formulation 1. Pyrethrins 0.08%, Piperonyl butoxide 0.15% and MGK snyergist 264 0.25%.

Formulation 2. Chlordane 2.0%, Pyrethrins 0.075%, MGK 264 0.3%.

Formulation 3. Diazinon 0.5%, Pyrethrins 0.08%, Piperonyl butoxide 0.15%, MGK 264 0.25%.

Each formulation was tested on each of two panels and on two successive days to give four replicates. Roaches were exposed for four hours and hourly mortality counts were made throughout the exposure period and again at 24 hours. Tests of each formulation were repeated 1, 7, 14, and 28 days after treatment of the panels.

Table II shows the results for each formulation. Mortality of roaches (four replicates of 10 roaches) exposed for four hours on panels sprayed with aerosol formulations as indicated.

Pressurized residual household sprays containing 0.5% Diazinon can be formulated using "Geigy Diazinon 20S," synergized pyrethrins, a base oil and propellants. Diazinon 20S is a 20% oil solution, containing 1.5 pounds of Diazinon per gallon. The product is virtually odorless. In laboratory tests, Diazinon 20S has been subjected to temperatures as low as —15°F. without any deleterious effect on the compound.

A typical formula for a residual household spray containing Diazinon would be 0.5% Diazinon, a 1-5 ratio of pyrethrins and synergist and a suitable base oil. This concentrate could be combined with suitable propellants to produce pressurized type residual sprays.

The selection of a pyrethrin-synergist concentrate for use in the formulation will be up to the discretion of the manufacturer since there are several combinations commercially available.

Propellant 12, or a combination of 11 and 12 at a concentration of 30 to 50%, appear to give the most satisfactory results. A two-stage or pressure filling method would be more efficient than the single-stage or cold fill method.

For a residual type spray of this nature, the valve-button combination which generally performs in the most satisfactory manner should have a valve metering orifice in the vicinity of .018 inch reverse taper actuator. This combination delivers a sufficiently narrow coned spray desirable in a residual type of insecticide. ★

Acknowledgement is made to the following for their assistance in the preparation of this article.

Continental Filling Corp.
Danville, Ill.

Peterson Filling Corp.
Danville, Ill.

Entomology Department
Rutgers University
New Brunswick, N. J.

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Proprietary Co. Names Agent

Fassett and Johnson Ltd., 86 Clerkenwell Road, London, E.C. 1, England, has been appointed sole distributors in the pharmaceutical field for the "Hero" brand of aerosol products manufactured by Proprietary Pressure Packages, Ltd., London.

Chemical Problems in the

Perfuming of Aerosols

By Dr. P. H. Witjens*
Research Department
Polak & Schwarz International N.V.
Hilversum, The Netherlands

WHEN the first aerosol insecticides were produced about 15 years ago, one certainly could not foresee that, in only a few years time, this type of packaging would develop into so important a branch of industry covering such a wide range of technical and household products, pharmaceuticals, cosmetics, and even food products. Neither would it have been possible to predict that there lay ahead such an interminable number of technical problems, many of which are still being worked out today.

The appearance of a text book devoted exclusively to pressurized packaging suggests the magnitude of the technical problems associated with this type of packaging.

Everyone who has followed the development of the aerosol industry would agree that the study of the more practical problems had had the priority, but that only a very small part of the results of these studies has been published. Although this is regrettable, it is quite understandable.

The research work mentioned in literature usually deals more with aerosol fundamentals, and one striking feature is that most of these fundamental studies deal with the physical properties of the propellants and the physical relationship between the propellant and the other components of the package. The chemical inertness of the propellants is most certainly one of the reasons for this emphasis on the physical properties. However, the rather slight chemical activity of the propellants *does* play a substantial role in most aerosol problems, since the stability of the product *is* affected. I would like to illustrate one aspect of this in greater detail to demonstrate one of the ways in which a change in the aerosol formulation, especially in the odor, develops.

It should be mentioned here that a change of odor (especially of the perfumes of cosmetic aerosols) can provide the first real indication that the contents of the container are not completely stable, and this odor change generally precedes more serious chemcal changes which can make the pressurized product completely unusable.

To prove this point, experiments were carried out using a system that could serve as a prototype for a special group of aerosols with a substantially cosmetic application. This system is based on:

Propellants
Oxygen
Water
Ethyl Alcohol
Container Material

The propellant used for products of this group, which includes hair lacquers, sunscreens, room deodorants, etc., is usually a mixture of difluoro-dichloro-methane and monofluoro-trichloro-methane. The most important function of the latter is to reduce the pressure of the mixture so that it falls below the value considered safe for commercially available tinplate and aluminum containers. There is a marked difference between the chemical reactivity of the difluoro and monofluoro compounds. Whereas the former, stabilized by the introduction of two fluoro atoms in the molecule, shows practically no further hydrolyzation of the halogen atoms, the monofluoro compound still retains, to a small extent, this reaction possibility. Although the chemistry of the fluoro-chloro-methanes is only fragmentally known, it has been proved that in this respect that the introduction of only one fluoro atom into an otherwise chloro substituted methane, does not completely suppress the normal reactivity of the chloro atoms present.

For reasons of simplicity the monofluoro-trichloro-methane has been used instead of the propellant in our experiments. The use of ethyl alcohol is self explanatory. Unless water has definitely been excluded, there will probably be a small quantity present. And since the commercial alcohols generally contain traces of water, we have therefore included water in our experiments. Air, and therefore oxygen, are probably present in aerosols, especially when the product is filled under pressure. The possibility of contact with metal, particularly iron, cannot be excluded either, since for example, the internal coatings may be plasticized or torn, thus exposing portions of the metal wall to the container contents.

All the aforementioned components are brought into contact with each other, care being taken that the liquid phase is homogenous. The mixture is then stored under two different sets of conditions, one at 100°C. for seven

* Abstracted from an address before the first meeting of the European Federation of Aerosol Associations in Paris on June 26.

hours, the other at 55°C. for 14 days. The latter is the same as the test commonly used for determining the stability of aerosols.

These experiments brought to light some interesting results which could explain the change of odor often detected in the first stages of aerosol corrosion and decomposition. Apart from a lowering of the pH of the mixture (which logically could be expected under such conditions) the presence of acetaldehyde and acetaldehyde diethyl acetal could also be demonstrated. As the quantities of these reaction products formed were very small, their presence in the reaction mixtures was determined by gas chromatography analysis, a method based on chromatographical separation of the mixture. The presence of the various components in the gas mixture emerging from the column is shown by changes in the heat conductivity of the gas stream which is continually registered.

In the gas chromatograph, the untreated starting mixture gave one curve, and, after heating the mixture for seven hours at 100°C., a different curve was obtained. Two new peaks were clearly observable in this second curve, one located before the peak for chloro-trifluoro-methane and the other, a broader peak, located after the maximum for ethyl alcohol. It could be proved that the former peak was caused by acetaldehyde by adding some acetaldehyde to the reaction mixture and obtaining a heightening of this maximum. Acetaldehyde diethyl acetal was also identified by locating the maximum with the pure compound, and by this method both these reaction products could be unmistakably detected. The lowering of the pH, due to the formation of hydrochloric acid from the fluoro-trichloro-methane, was also observed without any particular difficulty.

Based on these results, an attempt is being made to define the conditions under which these products are formed. From the observations made the following hypothesis on the reaction pattern can be deduced:

Under the influence of acid, formed from water and fluoro-trichloro-methane, and metal or metal halide, the ethyl alcohol is being dehydrogenated to acetaldehyde and this in turn is partially converted into corresponding diacetal. The atmospheric oxygen can be primarily considered as the hydrogen acceptor. This supposition is being tested in a series of experiments mentioned in Table I.

TABLE I

	$CFCl_3$	H_2O	EtOH	O_2	temp. °C.	pH	acetaldehyde
Mixture 1	50	5	45	+	55°	336h 2	++
Mixture 2	50	5	45	—	55°	336h 4-5	+
Mixture 3	50	5	45	+	100°	7h 3	++
Mixture 4	50	0.05	50	—	100°	7h 4-5	—
Mixture 5	50	5	45	—	100°	7h 3-4	+

acetaldehyde — detectable by gas chromatography ++
acetaldehyde — only detectable by odor +
acetaldehyde — not detectable by odor —

These experiments, all carried out in the presence of tinplate, show clearly that although oxygen promotes the formation of acid as well as acetaldehyde, its absence does not exclude the process completely! The substantially complete absence of moisture depresses the formation of aldehyde almost entirely although acid continues to be formed.

In aerosols containing alcohol and propellants 11 and 12, the abovementioned processes may also be present in practice. However, the process of decomposition does not stop here. The aldehyde formed will then condensate, under the influence of an acid-metal catalyst, to form unsaturated condensation products which together give the typical corrosion odor which aerosols take on.

If the products in question are perfumed, thus containing a complex of aromatic chemicals as part of the active ingredient, it is clear without further explanation that a lot of other condensation, esterification, re-esterification, and acetalization reactions can take place, by which the character of the perfume composition can be radically changed.

All these processes can take place *before* corrosion actually occurs and before the aerosol is unsaleable for that reason. However, qualitatively the product, especially if designed for cosmetic use, is *already* inferior.

Presuming it can be concluded that in the formulation and filling of aerosols containing monofluoro-trichloromethane, the presence of products which can act as hydrogen acceptors must be excluded where possible. For pressure filling this means that it must be recommended that the air present in the container be either removed or replaced by an inert gas.★

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"Vaniti-Mist" to Europe

The "Vaniti-Mist," a decorative, reusable aerosol fragrance dispenser developed by Risdon Manufacturing Co., Naugatuck, Conn., has just made its debut in Europe. Fragrance manufacturers in Finland and Norway have imported the American-made dispenser for filling in their countries. This is believed to be one of the rare times a complete aerosol container has been exported by a single U. S. manufacturer for loading in foreign countries.

The new fragrance container, made by Risdon, has seven parts: the cap, a decorative outer case which can be used indefinitely with fragrance refills, a plastic-coated glass bottle which is removable, the valve assembly, the actuator which can be housed in a special spraydome, and a rubber pad on which the inner bottle rests. All components, except the glass bottle and the rubber cushion, are manufactured by Risdon. The dispenser comes in two sizes, capable of holding one or two ounces of fragrance. Each can be equipped with metering valves or with non-metering valves.

The Mini-Mist, an aerosol perfume dispenser designed with the same reusable feature, but small enough to fit conveniently in a lady's purse, has been exported to Germany for the past year. It also has recently been exported to Great Britain.

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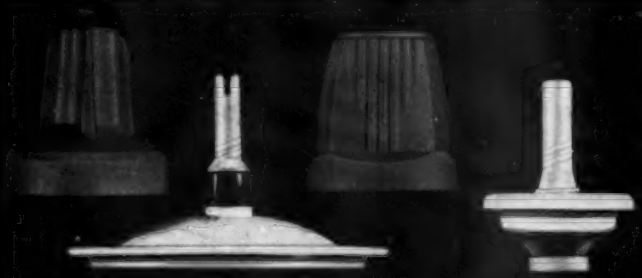

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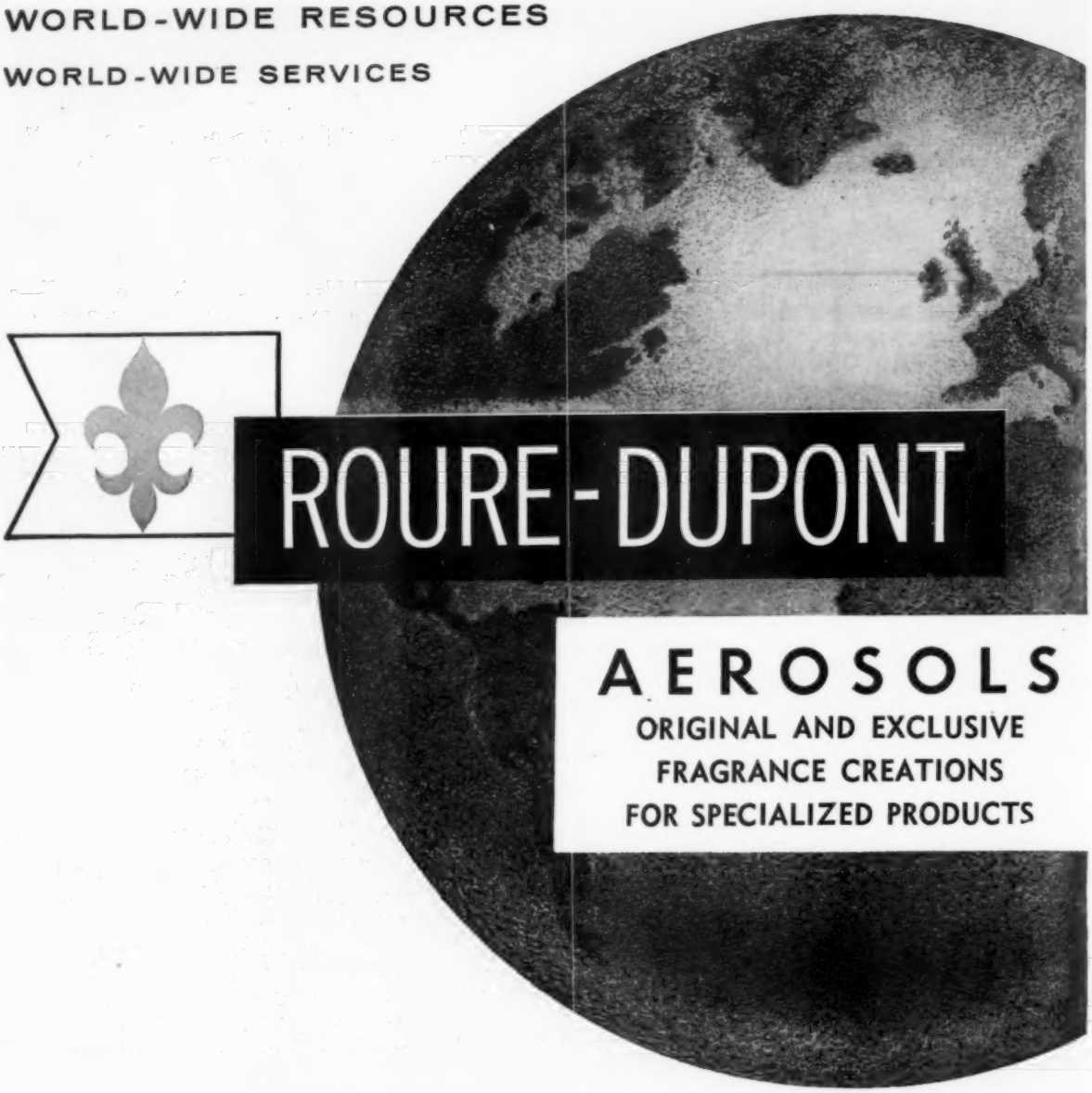

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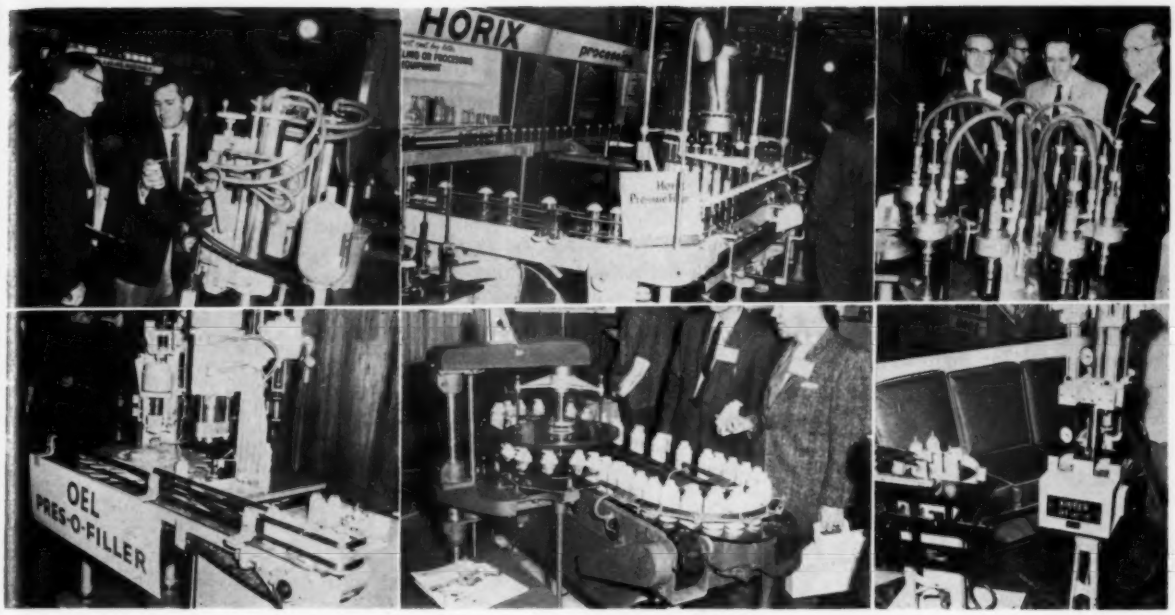

Top: Jack Jecker (Kartridg-Pak) demonstrates company's line; Horix pressure filler; an Alpha-Colton rotary unit is examined by Mike Coppola (DuPont), Bill Brosie (Stalfort), and Charles Wirth (DuPont). Bottom: Oil Equipment filler, Gottscho coder, and Kiefer "Gas Jet Jr." pressure charger.

Packaging Machinery Show Features Aerosol Line Equipment

SHOWING its usual energy at packaging and packaging machinery shows, the aerosol industry again copped a good share of the attention at the Packaging Machinery Manufacturers Institute Show at New York's Coliseum Nov. 17-20. Playing to good attendance all four days, exhibits of filling, crimping, and pressurizing equipment were all shown in operation.

For sheer weight of numbers, Arthur Colton Co., Detroit, with its full line of "Colton-Hope" and "Alpha-Colton" equipment, walked off with the show's aerosol honors. A complete automatic rotary aerosol filling line was just one of the many aerosol units shown in operation. In addition there was the "1352" nine station rotary vacuum crimper, the "1651" rotary aerosol pressure filler, and the "1351" one-station bottle crimper." Along one flank of the company's exhibit there was a semi-automatic straight line set-up, consisting of a "15MS" product filler, a "1352 vacuum crimper, and a "1651" in-line gasser. Cans shown being filled were the "Tasti-Cup" instant coffee and "Rise" shaving cream.

Horix Manufacturing Co., Pittsburgh, made an impressive debut in the aerosol industry with a large pressure filler in continuous operation discharging containers to the infeed of a "walking beam" pasteurizer-cooling unit. The pressure ingredient filler, equipped with 27 heads, operates at speeds of up to 225 per minute and employs gravity feed for light liquids and pressure fill for heavy (viscous) liquids.

The Kartridg-Pak Co., Franklin Park, Ill., formerly Mojonnier Associates, devoted the major share of its booth to a new low-cost semi-automatic line calculated to fit the needs of the company just entering the aerosol field. Called the "K-P 1000," the unit is said to be capable of producing up to 600 cans per hour and consists of a piston filler, vacuum crimper, and a pressure filler, all operating electrically. Also shown was Kartridg-Pak's standard small-run laboratory equipment.

Adoph Gottscho, Inc., Hillside, N. J. demonstrated its "Markocoder" portable imprinter running a line of aerosol food containers. The unit is equipped with wheels for easy movement and has a motor driven production line coder for imprinting the bottoms of aerosol containers.

Another pressure filling unit, operating on a pneumatic dial feed table, was shown by Oil Equipment Laboratories, Inc., Elizabeth, N. J. as part of

a larger exhibit by Economic Machinery Co. Division of Geo. J. Meyer Manufacturing Co., Worcester, Mass. Shown was the "L-1000" model, which has a 400-gram maximum capacity. It consists of a vacuum crimper and propellant filler synchronized for operation with the pneumatic dial feed table.

A pressure filler, the smaller "Gas Jet Jr." was shown by the Karl Kiefer Machine Co., in addition to two liquid fillers designed for high speeds. One of the latter is called a "pin-point" filler, the other a "submerged-stem" model.

Ingredient fillers, many applicable for aerosol lines, were probably the most common aerosol equipment shown. Such companies as Elgin Manufacturing Co., Elgin Ill.; Pneumatic Scale Corp., Ltd., Quincy, Mass.; U.S. Bottlers Machinery Co., Chicago; Arenco Machine Co., New York; Popper & Sons, Inc., New York; and the MRM Co., Brooklyn all exhibiting filling equipment (either liquid or powder) applicable for aerosol production use.

After fillers and pressure filling units, cappers for a wide range of container types and sizes were most common. Consolidated Packaging Machinery Corp., Buffalo, showed its DGF capper, which is specially designed for aerosol use, but such other firms in the field as Pneumatic Scale Corp., and Resina Automatic Machinery Co., Brooklyn, also displayed.

Labelers, too, came in for a good deal of attention. In this category Chisholm-Ryder Co. of Pa., Hanover Pa.; Burt Machine Co., Baltimore; and New Jersey Machine Corp., Hoboken, N. J.

A complete array of can unscramblers and conveyors was displayed by Island Equipment Co., Miami.★

Packaging Forum Hears Aerosols Termed "Most Promising" Drug Package

THE aerosol is one of the most promising packages ever developed for the pharmaceutical field. This was the opinion of a number of speakers at the Drug and Pharmaceutical Seminar of the 21st annual National Packaging Forum held in New York's Statler Hotel on Nov. 17.

The aerosol package opens up a vast new potential for "convenience packaging" of vitamins, ointments, creams, analgesics, and a wide range of other pharmaceutical products, N. H. Coonen, assistant manager of the central laboratory research and technical department, of American Can Co., declared. He pointed out that refinement of the one-piece extruded aluminum container, and coming introduction of a sturdy three-piece 24-ounce container in tinplate has given the marketer even more flexibility in choice of container for his product. He said the can maker is entering an era in which aluminum will become increasingly important and in which satisfactory performance is achieved with less and less tin.

Mr. Coonen predicted further refinements in can making, in addition to the coil cutting program recently initiated by his company, pointing out that the technology of aluminum can making is still in its infancy. The field of organic coatings is one that has gone a long way in recent years, he said, but newer, tougher, combination-type coatings will probably suuplant many used today.

Mr. Coonen acknowledged that 100% coverage in a three-ounce aerosol can is not usually possible but said his company had had success with a vinyl coat on top for extra protection in the area of the side seam.

THE coated glass container is bound to grow in popularity in the drug field because it possesses all the natural chemical advantages of glass, plus the esthetic one of consumer appeal, Walter F. Gavigan, sales manager of the Drug and Chemical Container Division of T. C. Wheaton Co. declared. In a question-and-answer period after his talk, he was assisted by Robert Allen, Wheaton's sales manager for aerosol containers, who pointed out that larger sizes of glass containers were possible. Mr. Allen said his company still considered uncoated glass containers as "unsafe" and added: "Unless we find a better way to make glass, it is unlikely we will change our previous policy of selling *only* coated bottles for aerosol use!"

A spokesman for another producer of coated glass aerosol containers, G. H. O'Donnell, manager of the Pharmaceutical and Proprietary Division Owens-Illinois Glass Co., also said the glass container is a "natural" for the pharmaceutical field. He predicted increased use of aerosol containers for flavorings, throat and nasal sprays, and a wide range of specific prescription and non-prescription items. He said that children have a lot of influence on the purchase of convenience packages and hinted that children are indeed attracted to the aerosol package.

F. White, vice-president of J. L. Clark Manufacturing Co., pointed out the many specialized dispensing features possible with the aerosol product, and predicted that improved containers and caps would help win added consumer acceptance.★

•

New Fly Becomes Menace

The face fly, known in only three states before 1959, has spread to 12 other states and has become a livestock pest in at least three of these, the U. S. Dept. of Agriculture reported recently. Known scientifically as *Musca autumnalis*, the pest was reported to be particularly troublesome in Ohio, Indiana, and Illinois, and of some importance in Wisconsin, Michigan, Delaware, Massachusetts, New Hampshire, New Jersey, Vermont, Pennsylvania, and West Virginia.

The flies accumulate primarily on the faces of cattle, under and around the eyes, in and around nostrils, and at the lips. They apparently feed on mucous secretions and on blood from insect bites and other wounds. An abundance of flies interferes with livestock feeding.

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The Importance of Aerosol Technology to the COMMUNITY PHARMACIST*

By John J. Sciarra, Ph.D.
Associate Professor of Pharmaceutical Chemistry
St. John's University, College of Pharmacy
Jamaica 32, N. Y.

EVER since the birth of pharmacy in this country, the pharmacist has constantly been placed under some type of pressure by many groups and events. Pressure from the medical profession during the first half of the eighteenth century resulted in the formation of the first pharmaceutical association. Many groups and individuals, interested in maintaining high standards for drugs and preventing their adulteration brought pressure upon the pharmaceutical profession, causing the enactment of many federal, state, and local laws prohibiting these acts. The pressure caused by the increased need for drugs and medical supplies during the Revolutionary, Civil and both World Wars showed the need for manufacturing drugs and medical supplies on a large scale and the importance of developing new drugs. The pharmaceutical manufacturing industry was born, grew, and fully developed as a result of the pressures brought about by these events. Many other examples of similar incidents can be found during the development of the pharmaceutical profession.

Today, in addition to the many pressures confronting the pharmacist during the normal operation of a community pharmacy, a new type of pressure is constantly on the increase. This pressure can be found on the many shelves of the pharmacy in the form of the well known "aerosol" or "pressure-pack" container. These products owe their existence to a pressure caused by a gas. However, unlike some other "pressures," this pressure can be of great value to the pharmacist if he learns more about it. It has come to represent one of the latest advances in the dispensing of pharmaceuticals and medicinals. The aerosol package or container has become an integral part of the American home and, as such, has readily been accepted. Recently, medicinal and pharmaceutical products have appeared in this type of container in ever-increasing numbers. Because aerosols have "invaded" the domain of the pharmaceutical field, and are sold to a large extent by the pharmacist (both "over-the-counter" and "on prescription only") it becomes the responsibility of the pharmacist to acquaint himself with as much knowledge as possible in regard to aerosol products. In this way he can render a service to both patient and physician.

THE term "aerosol" as it is used in this paper refers to those products which depend upon the power of a compressed or liquefied gas to expel the contents from the container. Aerosol technology may be defined as a systematic study of the principles, processes, manufacture, formulation, stability, testing, and storage of these products. In addition it should also include their physical, chemical and pharmacological properties. While it is not the intent of this paper to cover the technical aspects of this subject, a brief discussion of the historical development of this group of products may prove helpful.

Aerosol products were first introduced in the U.S. about 15 years ago, when the well-known aerosol insecticide developed during World War II became available. This insecticide produced a fine spray that remained suspended in air for a relatively long period of time. Since this product, which utilized dichlorodifluoromethane as the propellant, operated at a relatively high pressure of 70 pounds per square inch gauge (psig), the container was bulky, heavy and expensive. Following World War II, newer propellants, valves and containers were developed so that a proper spray could

* Presented to Pittsburgh, Pa., meeting, Conference of Boards of Colleges of Pharmacy, District No. 2, October 22-24, 1959.

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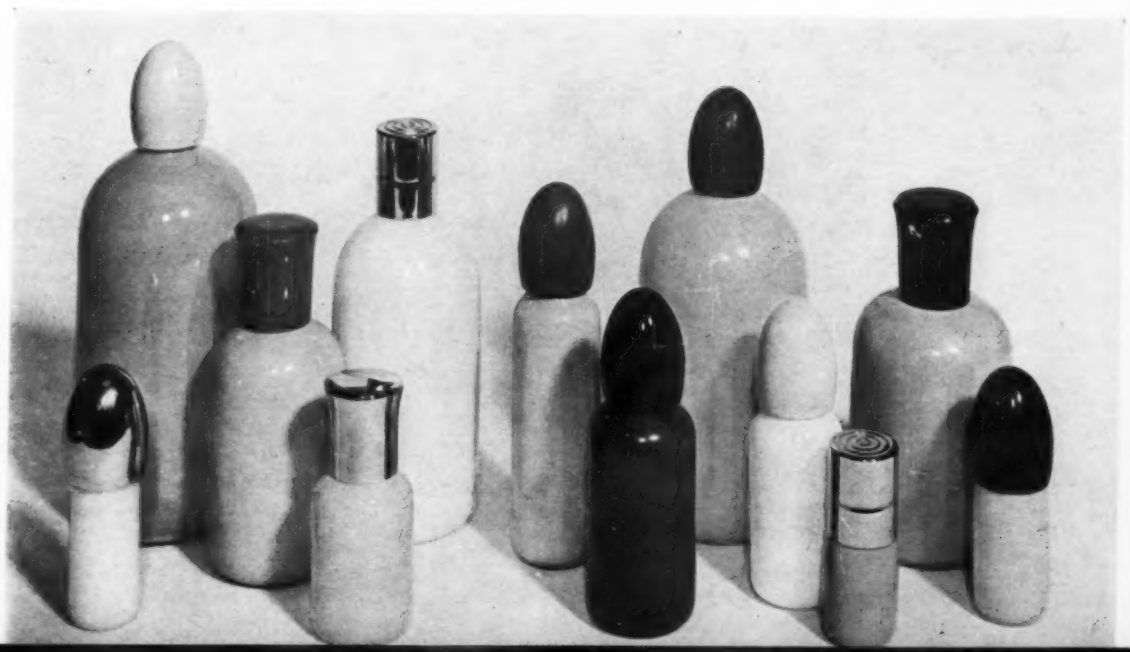

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be produced utilizing a pressure of 35-40 psig. This lower pressure made possible the use of a "beer type" container that considerably lowered the price of aerosols. These low and ultra-low pressure (15-20 psig) aerosols resulted in the use of glass and plastic-coated glass containers. Recently, stainless steel containers have been developed and found to be especially suited for use with medicinal products.

Many other drug and cosmetic products have gradually been formulated into aerosol form and today the list includes such products as hair lacquers, room deodorants, shave creams, perfumes, colognes, dental creams, men's hair preparations, veterinary preparations, spray-on-bandages, surgical sprays, pharmaceuticals, medicinals, and vitamin preparations. Since the retail pharmacy is one of the major outlets for aerosol products, the pharmacist should be aware of their principles of operation and component parts and how they are formulated. The need for such information became of increasing importance when in 1956 Riker Laboratories released several aerosol products under the trademarked name of "Medihaler." This represented a major advance in inhalation therapy since an aerosol product has been formulated and developed for internal therapy having many advantages over older modes of administration (atomizer, nebulizer, vaporizer). The advantages possessed by aerosol products for inhalation therapy have been stated many times and need not be repeated (but are included in the references). It would be sufficient to state that this method for the administration or application of medicinals and pharmaceuticals has been readily accepted by both physician and patient and has rapidly become another dosage-form for these products.

The number of aerosol products in use has constantly increased. Starting in 1943-44 with only one product, an insecticide released for general use in 1945-46, the number was gradually increased with the introduction of the hair lacquer, shave cream, room deodorant, perfumes and colognes, etc. Not only were new products developed but more and more consumers were using aerosol products. The aerosol hair lacquers and shave creams are examples of some products in widespread use. Many surveys have been conducted to show the growth and potential of aerosol products.

To date approximately 50 different pharmaceuticals and medicinal products have been successfully packaged as aerosols. Most of these products represent a new package for a previously existing product. According to a survey by the Chemical Specialties Manufacturers Association, of the approximately 350 million units of aerosols produced during 1958, about 7½ million units represented pharmaceutical and medicinal products. However, while this figure is low compared to the total volume, it does represent an increase of about 900% from the 1953 figure (800,000 units). It has been predicted that the total production figure for pharmaceutical and medicinal aerosols will reach the 16 million mark by 1963. With the increased emphasis placed upon aerosol pharmaceuticals, many of the major pharmaceutical manufacturing concerns have investigated the possibility of utilizing this package for some of their products. Several of these products have been released for sale during the past year. Indications are that many more of these products will be released in the near future, especially in the area of medicinals for internal administration. The above mentioned figure for pharmaceuticals does not include the hair lacquers, shave creams, perfumes, colognes, and other cosmetics sold in pharmacies. When one considers the total sales potential of these products in the retail pharmacy then the importance of aerosols becomes apparent.

As can be noted from the data presented, many different types of aerosol products fall within an area of special interest to the community or retail pharmacist. Since the pharmacist handles many of these aerosol products for sale as legend and non-legend drugs, he certainly should have a knowledge of the technical aspects of aerosol products. When one considers such medicinal and pharmaceutical products as "Medihaler" (Riker), "Mistometer" (Winthrop), "Vi Daylin" (Abbott), "Vi terra" (Roerig), "Vi-Tyke" (Lederle), "Meta-Derm" (Schering), "Surfacaine" (Lilly), "Tronothane" (Abbott), and "Rezifilm" (Squibb) the need for this information becomes apparent.

The pharmacist has always been called upon not only to dispense medication but to dispense information as well. The patient wants to know more about the medication, the physician may want to know certain aspects dealing with the formulation of such products. The ingredients making up the aerosol are of interest to the dermatologist in his use of such products to prevent possible allergic reactions in his patients. The toxicity of the propellants and solvents used in the makeup of aerosols may be of interest to the physician. The chilling effect of some of the propellants may also be a factor to be considered in prescribing aerosol medication. Many consumers have asked questions of the pharmacist as to the operation of the hair lacquers, shave creams and perfumes in aerosol container. If the pharmacist is to maintain his professional prestige in his community he must continue to serve the people in his area. He must be in a position to give the same type of information on aerosol products as he has done and is still doing with other medicinal products handled by him. The pharmacist is familiar with the manufacturing procedure, formulation, storage, and other aspects of the tablets, elixirs, syrups, ampuls, capsules and other products. Now that the aerosol package has attained the status of another "dosage-form," as much information as possible should be known by those responsible for their distribution. Of all the various retail outlets for aerosol products, the pharmacy is the *only* establishment employing people with a professional degree and trained in the health professions. The pharmacist, by virtue of his background, can offer a valuable service to his community by disseminating this information not only for pharmaceutical and medicinal aerosols, but all aerosol products in general. Just as he cautions his patients on the proper use, storage, and handling of other forms of medication, so too should he do with aerosols. The

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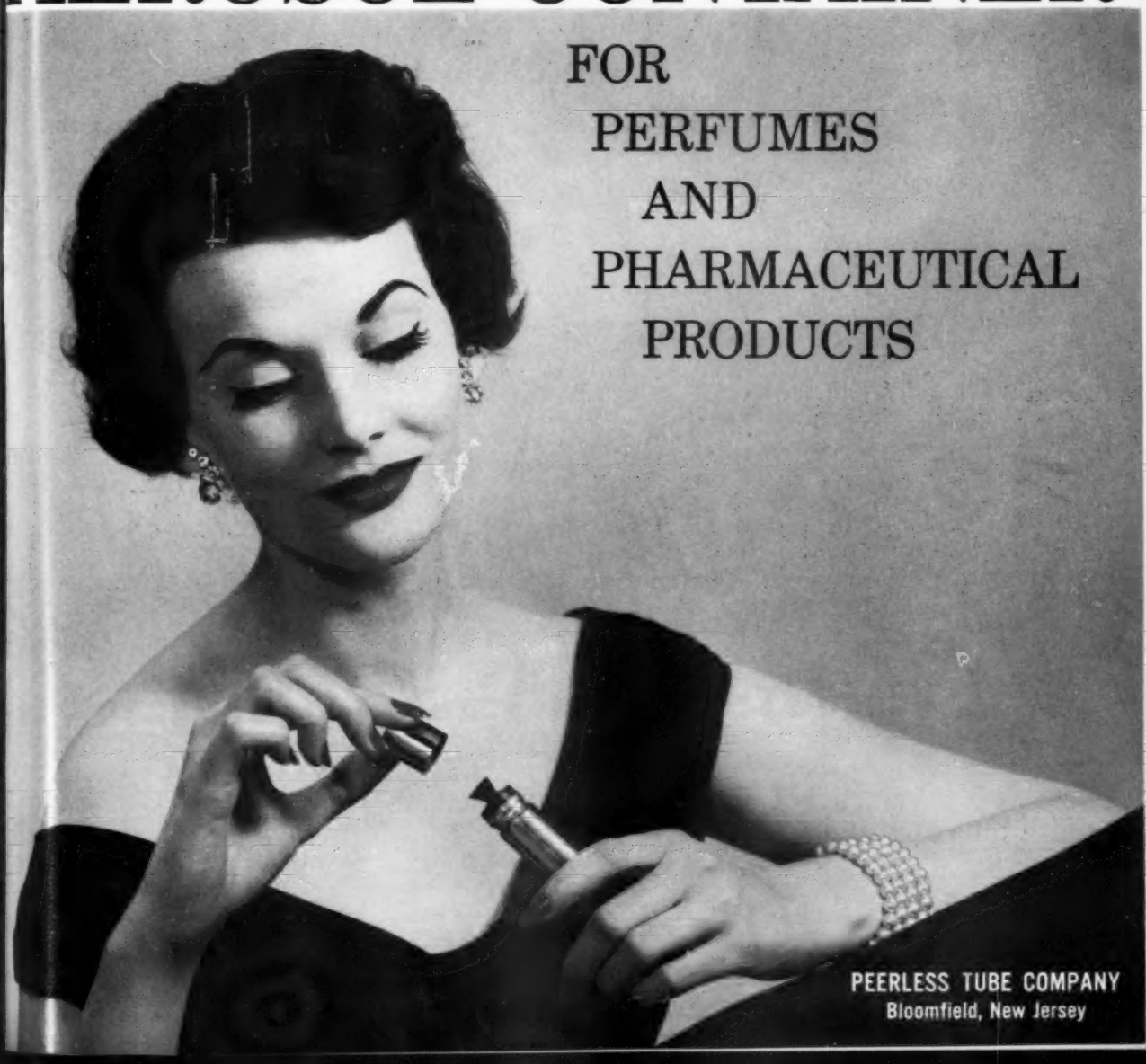

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value of proper storage, reading of directions, and precautionary statements on the container should be stressed. For example, "Do not incinerate," "Do not puncture container," appear on the label of all aerosol containers. The reasons for these statements are important. Many other examples could be cited.

Having established the need and importance of aerosol technology, it is suggested that colleges of pharmacy consider the possibility of including this topic in their pharmacy curricula. Depending upon the interest in this area, instruction should consist of a minimum of at least three-five one hour lectures as part of a course in dispensing pharmacy, pharmaceutical technology, or other related courses. Where there is increased interest in this area a complete course can be developed and offered as an elective to qualified students.

An outline of the scope of such lectures follows:

I. Introduction
   A. History
   B. Development of Aerosol Industry

II. Types of Aerosol and Principles of Operation
   A. Liquefied Gas
      1. Space Spray
      2. Foam Spray
      3. Surface Spray
      4. Three-phase Spray
   B. Compressed Gas Aerosol
      1. Nitrogen Type
      2. Nitrous Oxide, Carbon Dioxide Type

III. Compounds of Aerosols
   A. Propellants
      1. Nomenclature
      2. Physical and Chemical Properties
      3. Pharmacological and Toxicological Consideration
   B. Containers
      1. Metal Container
         a) tin-coated
         b) aluminum
         c) stainless steel
      2. Non-Metal Containers
         a) glass
         b) plastic-coated glass
         c) plastic

Typical of the products with which the pharmacist has to be acquainted is this nasal spray marketed by Rexall.

IV. Manufacture of Aerosols
   A. Formulation
   B. Laboratory and Pilot Plant Production
      1. Cold Process
      2. Pressure Process
   C. Large Scale Production

V. Testing, Stability and Storage of Aerosol

VI. Survey of Aerosol Products
   A. Medicinal
   B. Pharmaceutical
   C. Cosmetic
   D. Food
   E. Others

For courses of longer duration increased emphasis can be placed upon the items listed in the outline. While it is desirable to supplement the lecture material with laboratory instruction, this may be prevented by a lack of facilities. However, the equipment necessary to carry out a small but effective demonstration of the filling and handling techniques can be obtained at a relatively modest cost.

Coverage of the material outlined above would give the student adequate information to fully understand these products. The same information can be presented to pharmacists, who have previously graduated, at various local meetings or by means of post-graduate or refresher type seminars.

This paper has stressed the importance of aerosols to the community pharmacist, but this subject matter is of equal importance to the hospital pharmacist, medical representative and research and manufacturing pharmacist. This information can form the basis for more advanced and detailed studies.

Cognizant of the fact that at the present time the pharmacist is not called upon to prepare aerosol products *extemporaneously*, advances in this field may uncover a method whereby he can accomplish this satisfactorily with little specialized equipment.

Several colleges of pharmacy have taken an active interest in aerosols and have established aerosol laboratories. An aerosol research laboratory was established at St. John's University, College of Pharmacy in February 1958.

As an example of what can be done in this field, I would like to cite what has been done at St. John's University. While our aerosol research laboratory is primarily devoted to aerosol research and graduate students, qualified undergraduates are permitted to conduct some research projects. In addition, the equipment is used for demonstration purposes for undergraduates. Special lectures include the subject

(*Continued on page* 115)

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Consultant's Corner

by Robert A. Foresman, Jr.
Aerosol Consultant
Philadelphia, Pa.

The Water Bath — Key to Quality Control

MANY times in the past I have discussed the matter of quality in aerosols and to bring it up again may seem at least redundant. However, a number of things have come to my attention over the last few months (during my temporary desertion of these pages) that lead me to return to the subject once again.

Heard more or less frequently are such statements as: "I can't stand to see someone standing at the water bath doing nothing all day"—"Quality control is an expense that requires the exercise of judgment in assuming a calculated risk"—"Statistically all factors in aerosol production will balance out to a good package if reasonable care is used in production" — "Our prices are so low that the quality must be expected to suffer to some extent"—"Customers can't tell the difference"—"Our concern is that our package be found acceptable from a legal compliance standpoint, beyond that quality control is a luxury."

Also heard on several occasions: "We put the water bath in as eyewash —as far as we are concerned it's just a show piece and we would prefer not to even bother with it"—"We never heat our water, as the whole process is just a gesture anyway."

Suffice it to say that none of the foregoing quotations are universal and certainly none has been expressed by knowledgeable, responsible members of the industry. But if such thinking can creep in among fringe personnel of established organizations and/or at the policy level of new organizations, the entire industry may sooner or later be smeared with rather well deserved charges of laxity in handling its affairs.

Usually every aerosol line will have, to some degree or another, a fill check weigh operation, even if it has no other quality control activity in operation. This seems to me to be the result of deciding on the *most obvious* rather than on the *best* approach. I am not advocating that fill check weighing be discontinued or never instituted—quite the contrary, since it is one of the foundations of quality control and filling economics. But I do say that *more* honest to goodness headaches can develop in areas, beyond what check weighing will reveal, than will ever occur due to a slight over or under tolerance variation in weights or proportions of ingredients.

Certainly heading the list of quality check points, for the major percentage of standard aerosols (after weights are found to be correct) is the water bath. Production with no water bath at all (aside from being a violation of ICC regulations for standard metal aerosols) is analogous to driving a car while blindfolded—someone is bound to get hurt either physically or economically. I defy anyone to pick out (other than perhaps by expensive instrumentation) a leak of one dislodged bubble per 20 second in production without putting the cans under at least cold water. This rate of leakage will empty a can on a shelf in short order if the leak is through the valve, or bleed off all the propellant if it is a vapor phase leak of some description. So far nothing has been said about even warming the water. Leaks that will incapacitate the container over a period of storage may not even show up until something above room temperature is reached.

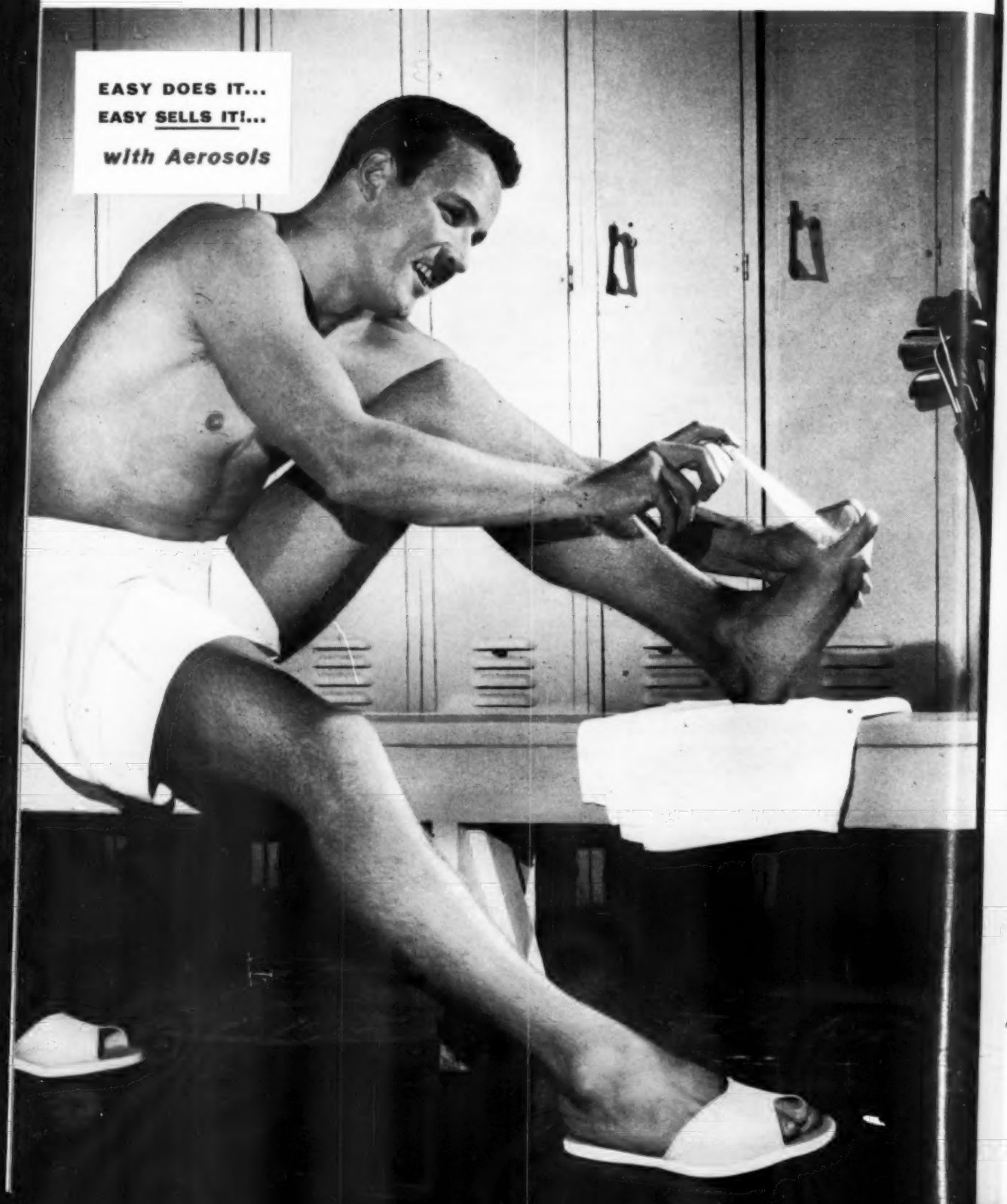
If we were talking about only the vagrant defects that occur from time to time, it might still be argued that there is little reason for all the fuss. But production *will* involve human actions and human failures for quite some time to come, and that is where the possibility of trouble in large chunks enters the picture.

Cans, closures, valves, and usually ingredients are all products of mass production completely beyond the control of the filling plant. Leaking side or double seams, underweight or undertemper metal, poor gasketing, improper assembly or incorrect components may singly or as conspirators serve to defeat a strict quality. Just as important (and many times of much greater importance) is the potential danger of physical injury.

A mistake in propellant somewhere along the line can cause pure propellant 12, for instance, to be packed in containers totally unsuited for it; or an error in the metal of the container can result in the unsafe pressure conditions even with proper ingredients. Poor elimination of air in the container *prior to* pressure gassing can have the same effect. If the water bath is properly used, all of these conditions will be violently

(*Continued on page* 117)

The Magic Touch of



Aerosol Packaging

could be your Rx for bigger pharmaceutical sales

Ever ask yourself these questions? *Would my pharmaceutical product be "better" as an aerosol? Would aerosol packaging make it easier to use or more acceptable? Would it generate more sales? Would it yield a better margin of profit?* Chances are, if your product can be sprayed, poured, dusted or daubed the answer to all these questions is *yes!*

Last year, pharmaceuticals were the fastest growing of all aerosol product groups—showing a sales increase of 50% in 1958 over 1957, compared to a 20% increase for all aerosols. And the market is still growing fast. It is expected that sales will reach $200 million by 1961!

Many Sales Advantages

There are many reasons for the success of aerosol-packaged pharmaceuticals. They deliver the product in a completely new form that's easier to dispense and apply, more convenient and more pleasant to use. They never are affected by evaporation of active ingredients or vehicles. They are cooling and dry rapidly on the skin. They are aseptic—untouched by the hands in applying. And they produce a minimum of irritation to the treated area. They can be inhaled easily and will penetrate nasal passages and bronchial tracts more effectively, thus speeding up the effects of medication.

Right now's the time to plan on capturing your share of the booming aerosol pharmaceutical market. And to help you get started in aerosol packaging of your medicinal product—General Chemical offers many valuable services:

Forward Research

As an extension of its own aerosol research and development program, General Chemical has initiated a grant-in-aid program at a large eastern college of pharmacy expressly for the study of pharmaceuticals in aerosols. Such research on all phases of pharmaceuticals as aerosols will help accelerate development of many new products.

New Product Ideas

Advance research in our aerosol laboratories has led to the development of typical formulations for a number of new or improved aerosol products. We are currently mailing out a New Product Bulletin each month. If you'd like to receive these bulletins, just ask us to add your name to our regular monthly mailing list.

Contract Fillers

We will also be glad to put you in touch with highly capable contract fillers, who can put up small test runs for you or handle full-scale commercial production. They will work with you from planning and testing through to volume filling. You don't have to invest a cent in equipment or production personnel when you work with these contract fillers!

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Product Promotion by European Marketers Found Still Wanting by U. S. Filler

By Sylvan Lefcoe
President
Par Industries, Inc.
Los Angeles, Calif.

SO FAR as the consumer is concerned, aerosols have not yet caught on in a big way in Europe. Although facilities and machinery for the filling of aerosol containers are modern and currently operating at full capacity in several plants in Sweden, England and elsewhere, the industry seems to be sadly lacking any kind of active promotional campaign for its products. Except for a few American-made aerosols, with a solid promotion program behind them, most of the European products are being received with a general lack of enthusiasm in Europe. This attitude is due principally to insufficient education of the consumer as to the benefits of the aerosol package, and how to use it. The aersol industry, with regard to consumer acceptance, is in about the same position in Europe now as it was in America five to eight years ago.

Europeans are generally more conservative than Americans in their approach to new products, and this is perhaps most evident in England. The aerosols making the best sales gains in England are the American products packaged there by such fillers as Coopers, Midland Chemicals, and Aerosol Packaging.

The thought that aerosols must have utility and practicability to be successful must be brought home to the skeptical European filler or marketer, just as it has been to the American businessman. The Scandinavian countries seem to share an attitude quite like that of the United States concerning the aerosol industry, with many American ideas being adopted especially in Sweden.

Aerosols, in relation to other items in the European economy, are more expensive to the average European householder than they are to the American customer. The general cost figures for packaging an aerosol in Europe compare very closely with those for packaging in the United States. The price paid for propellants, valves, cans, etc. is slightly higher; however, labor is cheaper so that the ultimate cost of the finished product is about the same.

In its effort to lower these component costs, Germany and Sweden, in particular, have gone to other propellants such as butane, propane and other compressed gases. Also, a considerable quantity of uncoated glass aerosol containers are used, many of which, from a safety standpoint, would not be filled in the United States. Further, such flammable propellants as the hydrocarbons are used to a greater extent than in the U.S. One product, a furniture polish packaged with a hydrocarbon propellant, produced a blazing torch when a match was lit near the use area. It could be made into an acceptable product by using some non-flammable solvents.

SYLVAN LEFCOE, president of Par Industries, pioneer custom filler in Los Angeles, has just returned from an extensive trip through seven countries of Europe. During his tour he talked with many custom fillers and suppliers in the aerosol industry, offering technical help and advice, and receiving some in return. His views concerning the European aerosol industry are contained in this exclusive report.

IN Europe there are no "federal" regulations (such as we have from the Interstate Commerce Commission) regarding various phases of the filling and preparation of an aerosol. I have observed the storage of flammable liquids adjacent to main manufacturing areas, contrasted with our requirements of separating at least for 50 feet. The individual aerosol packer holds himself responsible for such things as pressure limits, types of cans, etc. The recent second annual meeting of the International Aerosol Association in Zurich and the subsequent meeting of the Federation of European Aerosol Associations in Paris, bringing together important members of the European industry, is the kind of cooperative effort that is also necessary in formulating safety codes and regulations for storing, handling, and manufacturing aerosols.

Europe is enjoying a banner year in production of aerosols. Capacity of the aerosol fillers ranges all the way from a modern plant in England packing 50,000 cans per day, to the 5,000-10,000 units per day output of a small French perfume filler. We in the U.S. have many things to learn from the European aerosol filler, and in turn have many production tips to give him. An open-minded attitude was the rule in visits with the personnel of most aerosol manufacturers in England and

(*Continued on Page* 125)

NEW!

"The package *is your product* . . . at the point-of-sale!"

Another new merchandising package from BRADLEY-SUN . . . the all aluminum . . . seamless . . . lightweight . . . non-rusting . . . highly decorative aerosol can. Modern shoulder design, with exclusive embossing patterns . . . brilliant direct four color printing.

This new container is backed by extensive aerosol technology including a variety of perfected internal coatings and advanced bottom seaming which makes it suitable for all commercial propellants. Volume production is soon to be ready at the world's largest and most modern impact extrusion plant devoted to fabrication of aluminum containers.

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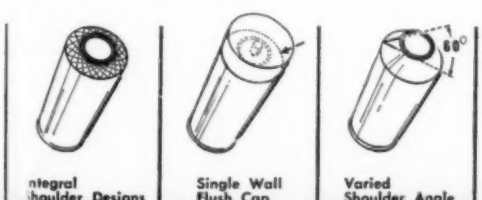

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Division of **American Can Company**, *Hillside, New Jersey*
Sun Tube of Canada, Ltd., Ottawa, Ontario

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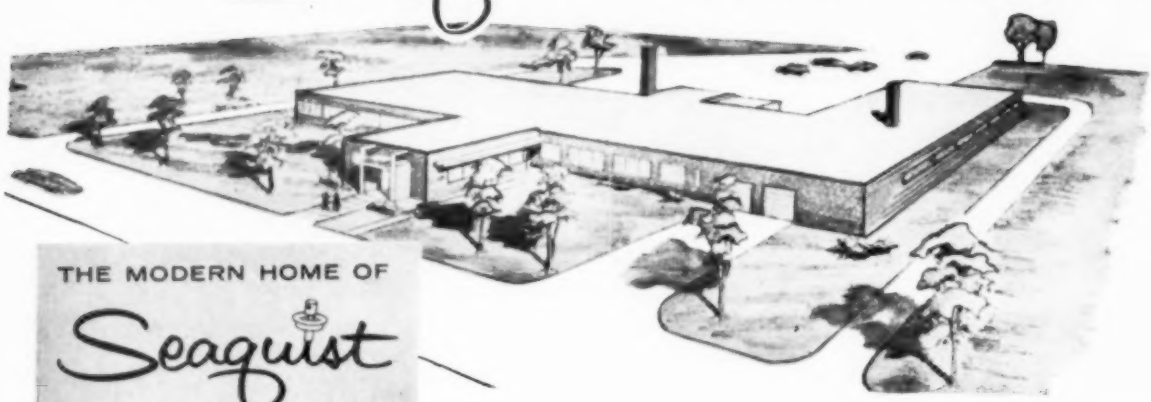

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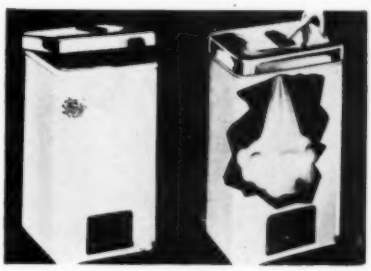
Monarch Homogenized Dessert Topping is a new product of Monarch Fine Foods Ltd., Toronto, in a Crown lithographed can with a new type Precision upside-down spout valve. It will be marketed nationally in Canada.

Skin Clear Medicated Foam is a new topical pharmaceutical product introduced by Max Factor, Inc., Hollywood, Calif. for treatment of acne, blackheads, pimples and other skin blemishes. Valve and vertical actuator were made by Risdon Manufacturing Co., coated glass bottle by Wheaton Plastics Co., and Aerosol Techniques, Inc., was the custom filler. Formulation contains the antibiotic, tyrothricin, and antiseptic germicide, hexachlorophene. It is tinted to blend with the skin and will sell for $1.95 in the two-ounce bottle.



Air San is a waste receptacle equipped with an individual **Ozium** sanitizing spray dispenser built into its cover. Aerosol unit is actuated from outside unit. Device was developed by Woodlets, Inc., Buffalo, N. Y.

Krylon Rust Magic metal primer, a new product of Krylon, Inc., is a fast-drying formulation containing a phenolic resin penetrant which acts as a carrier for pigment and vehicle. Product can be topcoated in two hours.

NEW PRODUCTS AND PACKAGES

A new actuator cap has been developed by Valve Corp. of America, Inc., Bridgeport, which combines metering or non-metering valve with cover cap. Both are molded as one unit and entire package is used without removing cap. Package can be banded to prevent accidental discharge prior to sale.

Time Saver spray is an anti-skinning ink spray developed by Sprayway, Inc., Chicago to save the printer press time and to stop ink waste. May be sprayed either on press or directly into ink can.

This new perfume purse aerosol package has been developed by Metal Fabrications, Waterbury, Conn. to fit around VCA valve. It features polished brass flare container with two-color marbelized printing and is made to dispense without cap removal.

Lady Chatterley's Instant Sexx is a novelty product introduced by Tip n Twinkle, Roanoke, Va. and developed and filled by Pace, Inc., Wilmington, Del. Six-ounce Crown "Spratainer", retailing at $1., dispenses a heavy oriental perfume spray.

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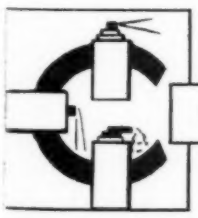

CONTINENTAL FILLING CORPORATION

Danville, Illinois

NEWS of Pressure Packaging

New Custom Filler in W. Va.

The Miller Chemical Corp., Charlestown, W. Va., manufacturers of fertilizers and pesticides, has established a special division to custom fill aerosol perfumes, paints, insecticides, room deodorants and other related products. Called the Spra-Pak Division of Miller Chemical Corp., the division is headed by Richard L. Riley, who has had over 16 years experience in aerosol and related packaging.

The plant has a production capacity of 20,000 aerosols per day, with a fully staffed research and control laboratory to do customer development work and quality control.

•

CSMA to Limit Convention

The Chemical Specialties Manufacturers Association has moved to limit attendance at future midyear and annual meetings. The Board of Governors has voted that representatives of non-member companies may now attend only as prospective members on invitation of the association's president. Heretofore, attendance has been open to all who wished to register.

Recommendations for invitations to non-member companies will be made through the chairmen of the executive boards of the association's six divisions, or the chairman of the general membership committee. Each company receiving such an invitation may send representatives who will be allowed to register at the meeting.

The new policy is effective with the 46th annual meeting to be held at the Mayflower Hotel, Washington, D. C., Dec. 7-9.

•

"Qwip" Set For British Market

"Qwip," pressurized whipped cream product of Avoset Co., Oakland, Calif., has been introduced on the British market by G. Bradley and Co., 114 Wigmore Street, London W. 1. The product is reported to be the first such food item on the British market, which hitherto has been curtailed because of lack of refrigeration in the English home. Six-ounce container employs nitrous oxide as the propellant.

•

Cont. Filling Appoints Kary

Roland M. Kary, Ph.D., has been appointed by Continental Filling Corp., Danville, Ill., custom filler to take over the position of director of research. He will be in charge of research and development, quality control, and production control, with the impetus on development.

Dr. Kary came to Continental Filling from the Metal & Thermit Corp., Research Laboratories, in Rahway, N. J., where he was in charge of the general organic section. He is a member of the American Chemical Society, the Metropolitan Microchemical Society, and the Scientific Research Society of America. He was born in Vienna, Austria, and received his Ph.D. in organic chemistry from the University of Vienna. He came to the U. S. in 1940 and has a number of scientific publications and patents to his credit.

•

PI Forms Additive Committee

With a view toward the far-reaching effects of the 1958 food additives amendment to the Food, Drug & Cosmetic Act, the Packaging Institute has announced formation of a special committee to study the amendment. During its launching stage, the committee will be headed by Robert V. Wilson of Continental Can Co.

•

SK&F Buys Veterinary Co.

Smith, Kline & French Laboratories, Philadelphia, last month agreed to purchase Norden Laboratories, Lincoln, Neb., manufacturer and distributor of veterinary pharmaceuticals and biologicals. When the transaction is completed, it is expected to give SK&F an established position in the veterinary field.

Colgate Begins New Construction

The Colgate-Palmolive Co., New York, has embarked on a major construction program for the Toilet Articles Division at its Jeffersonville, Ind., plant to speed up service for midwestern and southern customers.

Frederick L. Stephens, director of manufacturing of the Toilet Articles Division, said the project, which totals more than $1 million, includes a four-story addition to the Division's packaging and shipping center, and a new two-story warehouse for supplies and finished products.

As part of the expansion program, a one-story office building for toilet articles plant manager C. J. Slaton and his staff also will be erected in the same plant area. The new warehouse will cover 60,000 square feet and the two additions will occupy a total of 25,000 square feet. Construction is expected to be completed by May 1960.

Among the Colgate-Palmolive toilet article products made at the Jeffersonville Plant are "Colgate Dental Cream," "Colgate" and "Palmolive" shaving preparations, "Halo" shampoo, "Lustre-Creme" shampoo, "Veto" deodorant, and "Cashmere Bouquet" talc and hand lotion.

•

Jean Baer Becomes Consultant

Jan Baer, formerly New York sales representative for Pennsalt Chemicals Co., Philadelphia, has left that company to set up as an independent consultant. He will operate from his home at 64 Westminster Road, Great Neck, N.Y. Telephone number of his office is HUnter 2- 1469.

•

Aero-Chem Changes Name

The stockholders and directors of Aero-Chem Laboratories, Inc., Bridgeport custom fillers, recently changed the name of the company to Aero-Chem Fillers, Inc. At the same time they reelected Charles O. Rader as president of the firm.

Making sales...these Aerosol Containers from Canco!

All these products go to market dressed in the finest . . . Canco's famous Aerosol Containers!

If the sale of your product might benefit from aerosol packaging, there's good reason to turn to Canco. The development of the best aerosol container for your product requires skill . . . experience . . . and the right answers.

Canco recognized the potential of the aerosol container—and pioneered its growth. For instance, Canco developed the tab side seam to give its containers greater buckling resistance and bursting strength.

You'll find Canco experience in the field of aerosol packaging is unsurpassed. A call to your Canco salesman will put this skill to work for *you* and your product.

CANCO Division **AMERICAN CAN COMPANY**

NEW YORK • CHICAGO
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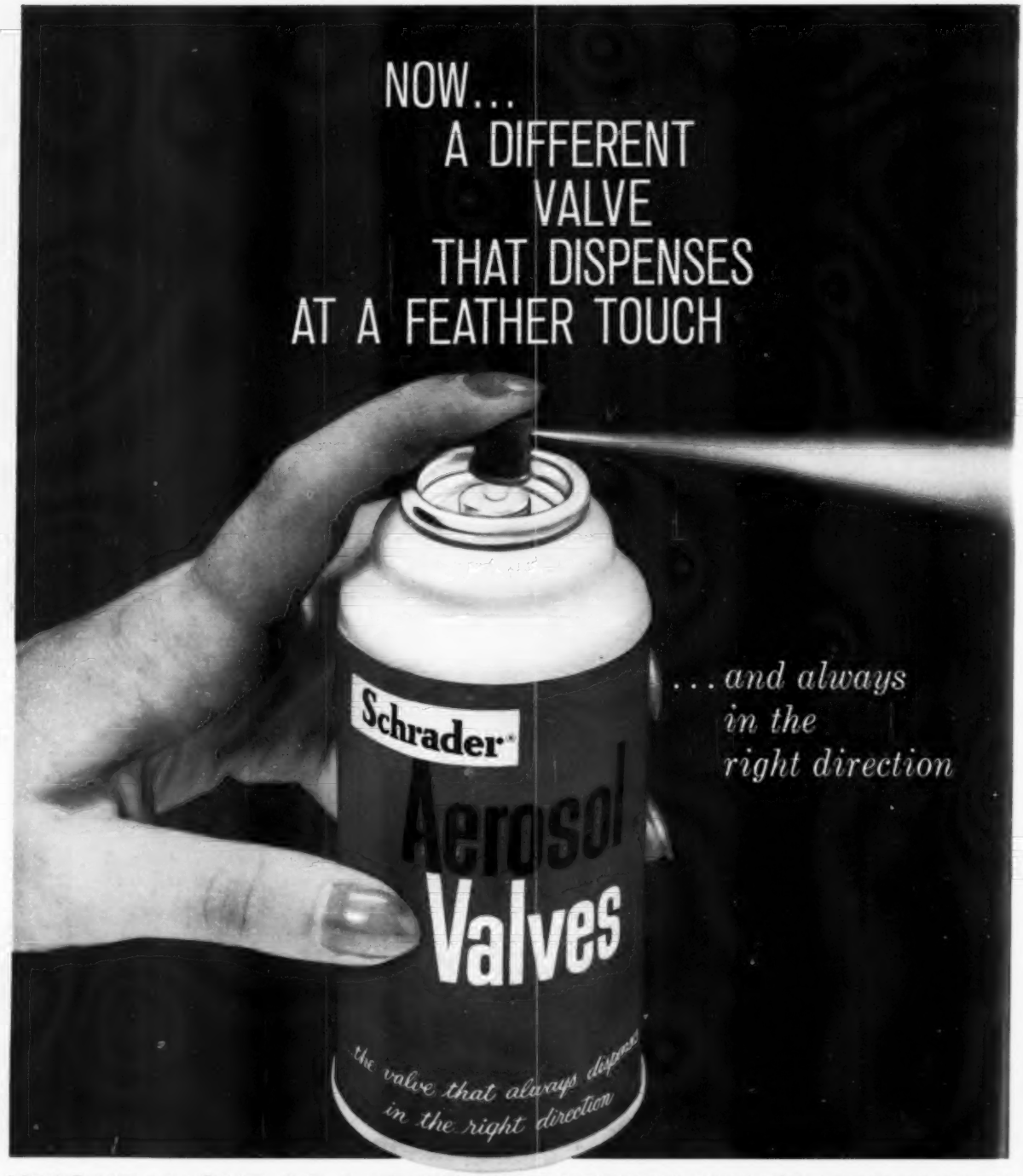

UNIQUE "LIGHT-AS-A-FEATHER" ACTION HELPS PRODUCTS GAIN CUSTOMER ACCEPTANCE

Visit Our "Hospitality Suite"
at the CSMA 46th Annual Meeting
December 7-10
Mayflower Hotel, Washington, D. C.

Schrader
a division of SCOVILL

Aerosol
Valves

A. SCHRADER'S SON
Division of Scovill Manufacturing Company, Inc.
470 Vanderbilt Avenue, Brooklyn 38, N. Y.

Winning packages in the 11 different product categories.

Food Product Again Wins CSMA Aerosol Package Contest

FOR the second year in a row, a pressurized food product was the recipient of the Grand Award as the most attractively designed package entered in the CSMA's Aerosol Packaging Awards competition. "Qwip", marketed by Avoset Products, Oakland, Calif., was presented with the award on Dec. 8 at the 46th annual meeting of the CSMA at the Mayflower Hotel, Washington, D. C.

This was the third consecutive year the Grand Award was won by a California marketer. The prize last year for another food product was given to "Sizzl-Spray" barbecue sauce, a product of Anderson Foods Division of Heublein, Inc., Menlo Park, Calif. Incidentally, the food product category has been a part of the contest for just two years, and has succeeded in walking off with the Grand Prize both times.

Rexall Drug Co., Los Angeles, a major aerosol marketer and always a very strong entry in the contest, won the drug and pharmaceutical award for the third consecutive year (with "Rex-Salvine" burn spray) and also

Six Judges examined 269 entries to select the top design in each of 11 product categories plus the Grand Award winner. Seated: are Mrs. Fred C. Poppe, New York housewife, who holds the Grand Award winner, "QWIP," and Mrs. Charlotte Montgomery, associate editor of *Good Housekeeping* Magazine. Standing, left to right, are Charles R. Beall, vice-president, trade promotion, McKesson & Robbins, Inc., William Pahlmann, interior designer and president of William Pahlmann Associates, Inc.; and Walter F. Kohn, marketing consultant. Absent from the photo is Lawrence Drake, Editor, Grocery Edition, *Chain Store Age*.

1959 AEROSOL PACKAGING AWARD WINNERS

Close-up of the eleven packages judged the most attractively designed in eleven different product categories in the 1959 Aerosol Packaging Competition. "QWIP" dessert topping, a product of Avoset Co., Oakland, Calif., received the Grand Award as the most attractively designed package entered in the competition as well as top award in the Food Products category.

copped one of the oldest of the category awards, insecticides, with its "Target" insect killer. In 1958 Rexall won two prizes, in 1957 the company shared the Grand Award and walked off with three other category prizes; and in 1956 it won a single award. Thus Rexall, with 8 awards and a grand prize in three years, can stake legitimate claim to having won the most aerosol awards of any marketer in recent years.

This year's contest was noteworthy in that five of the eleven winning packages were capped by large full-circumference stacker overcaps. In 1958 four of eleven winners were equipped with such caps, in 1957 it was five of the ten winners, and in 1956 one of the ten winners (the grand prize award) had large stacker-type overcaps.

The category for perfumes, colognes, and toilet waters, always one of the most hotly fought contests because of the abundance of luxury-type packages, was won by Parfum Ciro, Inc., New York, for its "Oh La La" eau de parfum mist concentrate. The package is a gold tooled unit similar in general appearance to luxury lipstick containers.

Another major aerosol marketer, the Boyle-Midway Division of American Home Products Corp., New York, won the award in another tough category with its "Wizard" room deodorizer.

In addition to "Qwip", "Target", "Rex-Salvine", "Oh La La", and "Wizard", winners in the other categories were:

Shave Products: "Shaving Foam", Yardley of London, Inc., New York.

Paints, Enamels, Other Protective Coatings and Paint Removers: "Gold Enamel Spray", Craftint Manufacturing Co., Cleveland.

Industrial Products: "Rust Solvent and Penetrant", Plasti-Kote, Inc., Cleveland.

Miscellaneous Household Products: "Spray and Wave", Cort Cosmetics, Inc., Stamford, Conn.

Miscellaneous Personal Products: "Tan 'n Ban", Standard Oil Co. (Ohio), Cleveland.★

Herzka Becomes Consultant

Alfred Herzka, co-author of "Pressurized Packaging (Aerosols)" and until last month in charge of aerosol

Alfred Herzka

development for The Metal Box Co., Ltd., a leading aerosol container manufacturer and Precision licensee in Great Britain, has left that company to become an independent aerosol concultant. Pending formation of a consulting firm and completion of an aerosol laboratory, he will operate from his home at 54 Woodlands, London N.W. 11, England.

Mr. Herzka is widely known in Europe for his research in aerosols. For the past 14 years he has worked closely with the chemical industry, most of the time on aerosol projects. With Jack Pickthall of Polak & Schwarz (England) Division of International Flavors and Fragrances, Inc., he wrote "Pressurized Packaging (Aerosols)", the first technical book devoted to aerosols, which appeared early this year. He has also been the author of a series of columns called "Aerosols in Great Britain" in *Aerosol Age*. So far as is known, Mr. Herzka will be the only independent aerosol consultant in Britain.

•

Colgate Enters Ethical Field

The Colgate-Palmolive Co., New York, and Lakeside Laboratories, Inc., have announced an agreement for Colgate to acquire Lakeside Laboratories, Inc. in exchange for Colgate stock. Subject to the completion of all necessary formalities, the transaction will result in the issuance of about 1¼ shares of Colgate stock for each share of Lakeside stock now outstanding, or about $13 million at the current market price of Colgate stock. The acquisition marks Colgate's entry into the ethical drug field.

Lakeside Laboratories, Inc., located in Milwaukee, was founded in 1924. Drugs produced by Lakeside are widely used by doctors and in hospitals for the treatment of heart conditions, mental depression, anemia, asthma, and gastro-intestinal disorders. These products are available to the public only on a doctor's prescription.

A major share of present sales is represented by ten specialty products, nine of which were developed in the company's own research laboratories during the last seven years. The company's total sales in 1958 were over $6 million. Lakeside's pharmaceuticals are now being sold in 62 countries.

Upon consummation of the arrangement, Lakeside will operate as a wholly-owned subsidiary of Colgate-Palmolive. No change is contemplated in the company's management, personnel or operations except that Evan P. Helfaer, who has headed the Lakeside business since 1932 and is now its president, will become board chairman of the new Colgate subsidiary.

•

New Co. Takes Over Redram

The custom filling business, equipment, and inventory of Redram Chemical Co., now defunct Brooklyn aerosol filler, has been taken over by a new company called SpraPak Chemical Co., 260-262 Meserole St., Brooklyn 6. Heading the new company is Harold Blank, president, and Milton M. Blank, vice-president.

SpraPak will do custom filling of all types of products, as well as customer formulation work in its research laboratory.

•

Rutkowski to Perry Bros.

Perry Brothers, Inc., New York, manufacturing perfume chemists, has announced the appointment of Stanley F. Rutkowski as perfumer. He joins the company's laboratory staff.

Previous to this appointment, Mr. Rutkowski served as perfumer with Van Ameringen-Haebler. And, for the past 12 years, he was a perfume chemist with Givaudan-Delawanna. A graduate of Long Island University, with a degree in chemistry, he is an active member and currently assistant secretary of the American Society of Perfumers.

Norbert Smith to Powr-Pak

Norbert G. Smith has been named research and development chemist and plant processing chemist by Powr-Pak, Inc., Bridgeport custom filler. He was formerly associated with Reed Research Corp., as production manager, and before that was director of manufacturing and engineering at Aerosol Techniques, Inc. Previous to that he was director of research and development at the Connecticut Chemical Research Corp. for a period of six years.

Mr. Smith first entered the chemical field as production manager of the Drug and Cosmetic Division of Nopco Chemical Co. He is a member of the Scientific Committee of the CSMA, the Society of Cosmetic Chemists, and the American Chemical Society.

•

IFF Appoints Two

The International Flavors & Fragrances, Inc., New York, last month announced two appointments. George H. Cadgene has been named director of purchases for the domestic operations, one of several appointments resulting from consolidation of the U. S. operations of van Ameringen-Haebler and Polak & Schwarz. John L. Slais was named Midwest sales representative for the corporation's Flavor Division.

Mr. Cadgene was associated with Trubek Laboratories prior to joining IF&F. He is a member of the American Chemical Society and the CIBS, and has been active in the Essential Oil Association. Mr. Slais is a member of the Chicago Drug and Chemical Association and the Chicago Perfumery, Soap and Extract Association.

Drugs, Cosmetics Seen Closer

The cosmetics and pharmaceutical fields will come closer and closer during the next decade, and the products of each will tend more and more to be combinations of the efforts of both industries. This predicition was made recently before a marketing seminar session of the Pharmaceutical Advertising Club of New York by George J. Abrams, president of the Hudnut-DuBarry-Sportsman Division of Warner-Lambert Pharmaceutical Co.

As a prime example of how this trend is already manifesting itself in the aerosol field. Mr. Abrams pointed out that shaving creams today contain medicated ingredients to heal shaving nicks and condition the skin. He said that the age of such cosmetic-pharmaceutical products will bring with it the easier, more pleasant application of such products.

•

Penick Branch in 25th Year

The Chicago branch of S. B. Penick & Co., New York, celebrated its 25th anniversary on Oct. 31. Over 50 people, including present and former members of the staff, attended a party to commemorate the occasion.

The branch was established in 1934 by Harold A. Meyer, who rejoined Penick's home office in 1946 to supervise general sales of botanical and allied products. Since 1946 Ralph A. Olson has been in charge of the Chicago operations. Both Mr. Meyer and Mr. Olson are vice-presidents of Penick.

•

Silicone Prices Reduced

Reductions in the price of silicone defoamers, greases, and grease-like dielectric compounds were announced last month by Dow Corning Corp., Midland, Mich. The reductions vary from 5 to 8% and are said to be the result of more economical volume production techniques.

•

O-I to Build in Canada

Owens-Illinois Glass, Toledo, a leading U. S. manufacturer of glass containers and a pioneer producer of plastic items, announced recently it will open a plant in the Toronto area to produce rigid plastic containers.

Jordan Forms Publications Firm

Establishment of a new firm in the technical writing field was announced recently with the formation of Corporate Publications, Inc., division of W. Alec Jordan Associates, New York. Offices are located at 290 Park Ave. The organization offers a complete writing and design service for the preparation of technical sales literature and related corporate material.

H. Earl Tremain, named as vice-president, was formerly research administrator with Wyandotte Chemicals Corp. and Colgate-Palmolive Co.

W. Alec Jordan, president of the new company and also head of the affiliated technical public relations firm, was formerly editor-in-chief of *Chemical Week*. He said, "I have long felt that a need exists for a coordinated group able to translate technical data into accurate, readable sales material. With our staff of technical and editorial specialists, I believe we are in a sound position to fulfill that need."

Jack Marshad, designer, has been appointed consultant on graphic design, typography, and production.

CHICAGO AEROSOL TECHNICAL CLINIC . . . This photograph of the more than 225 aerosol executive, sales, and technical personnel attending the Chicago Aerosol Clinic of the CSMA was received too late for publication in Aerosol Age's November issue, which reported fully on both the New York and Chicago clinics.

On your own
Christmas Tree
May there hang happily
Good things and good fortune:
All you could possibly
Wish there might be.
The hoper who hopes so
Is Norda, naturally
Norda
Norda makes good scents

Amoroso to Tube Manifold

Announcement of the appointment of John D. Amoroso, as plant manager has been made by Tube Manifold Corporation, North Tonawanda, N. Y. He has had 20 years experience in engineering and plant management.

John D. Amoroso

He received his BS degree in mechanical engineering and electrical engineering from Carnegie Institute of Technology. He is a member of the Buffalo Chamber of Commerce, The Society of Automotive Engineers, The Engineering Society of Buffalo Inc., The American Society of Mechanical Engineers and the Institute of Radio Engineers.

•

Toni Dedicates New Lab

The Toni Co. last month officially dedicated its expanded research laboratories, in the Merchandise Mart, Chicago, claimed to be largest in the world devoted to the study of cosmetic products for use on hair and skin.

Raymond E. Reed, vice-president in charge of technical operations, reported that the dedication marked the completion of a two-year expansion program in the Company's research department. The program involved doubling of Toni's Chicago research facilities, acquisition of much new, valuable and unique laboratory equipment and a substantial increase in the division's technical staff. A $2,000,000 budget for the laboratory activities was allocated.

The newly-expanded research laboratories are located on the fourth and fifth floors of Chicago's sprawling Merchandise Mart and are adjacent to the Company's executive offices.

The laboratories are equipped with the most complete modern laboratory equipment. Among the special units are: a Shirley Ferranti viscometer, a high speed digital computer, polargraphic equipment, an infra-red spectrometer, constant temperature rooms and a wide range of special and standard fiber testing instruments.

Most of Toni's research work is carried out in the Chicago laboratories, where studies are directed toward the physical and chemical study of hair and skin and the effects on them by various products and processes. New chemicals are synthesized; experimental formulations are prepared and tested; competitive products and methods are evaluated. A large beauty clinic also is maintained in the Merchandise Mart.

waves and shampoos and other tests are conducted on thousands of women.

•

FTC Cites Colgate Ads

The Federal Trade Commission, in the midst of a general crackdown on fraudulent or misleading advertising, last month charged the "Gardol protective shield" television commercial for Colgate dental cream is deceptive. The FTC complaint alleges that the dentifrice does not completely protect the user's teeth against tooth decay by forming a "protective shield".

It was charged that the claim has unfairly diverted trade from competitors and substantially injured competition in violation of the FTC act.

•

Chanel Wins Civil Suit

Chanel, Inc., New York marketer of aerosol perfumes, has been awarded a judgment of $7,000 by the U.S. District Court in St. Louis against Pierre Marche, Inc., and other firms involved in the sale of atomizer perfumes labeled "C" and "C.5". The court ruled that the designations were variations of Chanel's "Chanel", "No. 5", and a "C" monogram linked to the company's advertising designation.

Pierre Marche and the other defendants were ordered to deliver up for destruction all perfume and labels, packages, and containers bearing the disputed designations.

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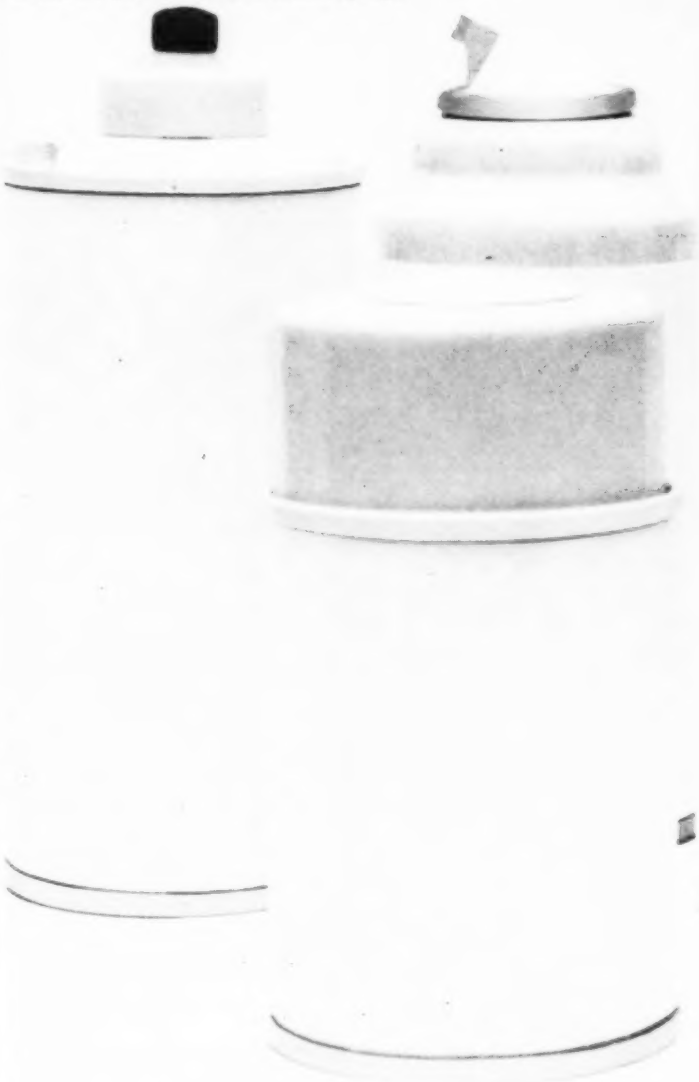
PVP/VA COPOLYMERS

(Vinylpyrrolidone/vinyl acetate copolymers)

FOR PROTECTIVE AND DECORATIVE AEROSOL FILMS

PVP/VA copolymers are especially suitable for aerosols designed as:

: pray-on bandages, gloves / tinted decorative sprays
: ntitarnish coatings for metals / shoe polishes, white
(r colored / protective leaf-shine sprays



TYPICAL FORMULATIONS AVAILABLE

PVP/VA copolymers are compatible with many modifiers and plasticizers so that hygroscopicity, flexibility, and abrasion resistance may be varied over a wide range. Organic solvents are not necessary for stripping these copolymer films as they are water removable.

PVP/VA copolymers are supplied as 50% solutions in SDA-40 anhydrous ethanol (E series) for cosmetic applications and as 50% solutions in anhydrous isopropanol (I series) for noncosmetic uses.

PVP/VA E-735 } (70% vinylpyrrolidone/30% vinyl acetate copolymer)
I-735 }
PVP/VA E-535 } (50% vinylpyrrolidone/50% vinyl acetate copolymer)
I-535 }
PVP/VA E-335 } (30% vinylpyrrolidone/70% vinyl acetate copolymer)
I-335 }

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A SALES DIVISION OF

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Wright Named to "Freon" Post

Robert Wright, Jr., has been named sales supervisor of the Chicago district office of DuPont's "Freon" Products Division, Wilmington, Del.

A technical sales representative of the division in Chicago for the last year, and for the year before that in St. Louis, Mr. Wright joined DuPont in 1947 as a chemical supervisor at the Grasselli, N. J., Works of its Industrial and Biochemicals Department. He joined the "Freon" Products Division in 1956.

Mr. Wright obtained his bachelor of science degree in industrial engineering from Lehigh University in 1947 after having completed three years' duty as an officer in the U. S. Army Ordnance and Signal Corps, including service with a heavy construction battalion in France, Germany, the Philippines, and Japan.

•

USI Appoints 2 in Sales

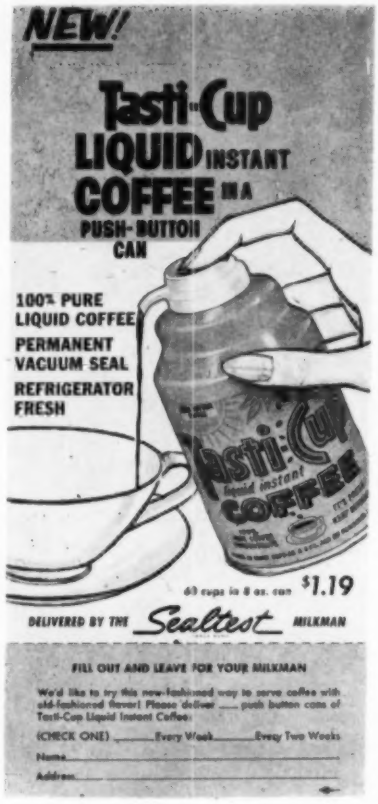
The U. S. Industrial Chemicals Co. Division of National Distillers and Chemical Corp., New York, last month named Roy A. Parker to be manager of its Kansas City Sales Division and Joseph G. Longstreth to be manager of the St. Louis sales office.

Mr. Parker has been with USI for 33 years, and prior to his new assignment was manager of the Kansas City sales office. He is a past president of the Kansas City Paint, Varnish and Lacquer Association and a member of the Midwest Chemical Sales Club in Kansas City. Mr. Longstreth has been a sales representative in the St. Louis area since he joined USI in 1955. He is a member of the Associated Drug & Chemical Industries of Missouri.

•

O-I Elevates E. Coleman

Edward A. Coleman, New York plastic sales representative of the Closure and Plastics Division of Owens-Illinois Glass Co., Toledo, has been appointed Eastern manager of closure sales. For nine years before coming to New York in 1955, he served as closure consultant in O-I's packaging research division at Toledo. Succeeding Mr. Coleman as New York plastic sales representative is Frank M. Harris.


NEW!
Tasti-Cup
LIQUID INSTANT COFFEE IN A PUSH-BUTTON CAN
100% PURE LIQUID COFFEE
PERMANENT VACUUM SEAL
REFRIGERATOR FRESH
60 cups in 8 oz. can $1.19
DELIVERED BY THE Sealtest MILKMAN
FILL OUT AND LEAVE FOR YOUR MILKMAN
We'd like to try this new-fashioned way to serve coffee with old-fashioned flavor! Please deliver ____ push button cans of Tasti-Cup Liquid Instant Coffee.
(CHECK ONE) ____Every Week ____Every Two Weeks
Name
Address

This order form was distributed in milk boxes all over the Metropolitan New York area early last month to introduce "Tasti-Cup" instant coffee. Product is being distributed by Sealtest Dairy milkmen.

•

Packaging Institute Elects Six

Six industry leaders were elected to the board of directors at the Packaging Institute's annual business meeting, Nov. 16 at the Statler-Hilton Hotel, New York. The election took place during the 21st Annual National Packaging Forum of the Packaginig Institute, held Nov. 16-18.

The new directors are Roy W. Abling, pharmaceutical manufacturing manager, Merck Sharp & Dohme; Walter C. George, director of research, Research & Development Div., Gaylord Container Corp.; William Didriksen, president, Ekco-Alcoa Containers, Inc.; William R. Huguenin, division manager, Stokes & Smith Plant, FMC Packaging Machinery Div.; Dr. L. E. Simerl, manager, Research & Development Dept., Olin Mathieson Chemical Corp., and Robert N. Johnson, manager, Quality Control Dept., Cincinnati Manufacturing Div., The Kroger Co.

Warn of Aerosol Extinguishers

Claims made for the efficiency o aerosol and other small-size "all pur pose" fire fighting units are "extrava gant and misleading," cautions th July issue of the *Journal of th British Fire Protection Associatio* The majority of these units, the re port says, contain "a mere half pin or less, of vaporizing liquid" an "many are of lighter and inferior con struction than extinguishers conform ing with British Standards.

"The jets produced by some of th more popular types do not exceed si feet. In fighting fire with them, th operator may find himself either ex posed to the danger through approach ing too near the flames, or out of range.

"The contents are suitable for special risks, but not for general purposes. The toxicity of these agents, should, in any case, be reason enough for not providing or using them in confined spaces."

The report is also quoted in the October issue of *Fire*, independent journal of the British Fire Services.

•

Fritzsche Bros. Honors Two

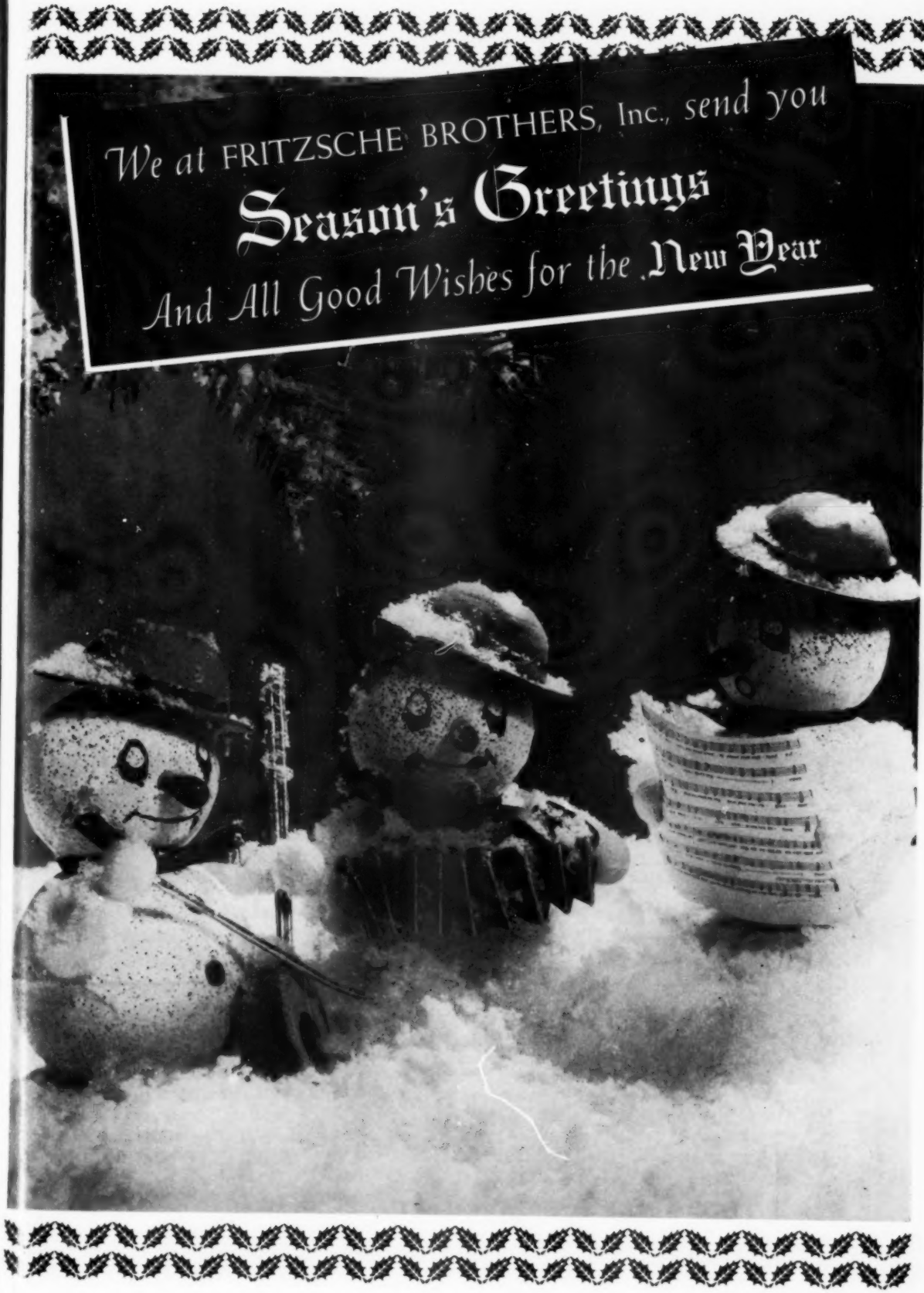
George R. Fellows, in charge of Fritzsche Brothers' Atlanta Branch Office, and James F. Shumaker, manager of the Philadelphia Branch, observed their 25th anniversaries with the New York essential oil and chemical firm on Nov. 1st. Celebrations were held in their respective cities with company dinners. Government bonds and embossed scrolls were presented in recognition of their long service.

Prior to 1955, when he took charge of the Philadelphia Office, Mr. Shumaker managed the firm's Cleveland Office. Mr. Fellows has devoted the major part of his 25 years to serving the Atlanta territory.

•

Crown Dedicates New Plant

Crown Cork & Seal Co., Philadelphia, officially dedicated its new can manufacturing plant in Winchester, Va. on Oct. 29. The new plant is designed primarily to manufacture food cans for the Shenandoah valley and surrounding agricultural areas.


We at FRITZSCHE BROTHERS, Inc., send you
Season's Greetings
And All Good Wishes for the New Year

USDA Sets Up New Staff

The U. S. Department of Agriculture has announced a number of changes in the organization of its Research Service. Main change was the organization of a "new product and process evaluation staff," within the framework of the Agricultural Research Service. The staff will evaluate the market potential and industrial practicability of products or processes which might be developed through the research efforts of the Utilization Research and Development Divisions.

At the same time the USDA announced the appointment of Dr. M. R. Clarkson as associate administrator of its Research Service and of Dr. William L. Popham to succeed Dr. Clarkson in his new post. As associate administrator, a new position at ARS, Dr. Clarkson will share with Dr. Byron T. Shaw, administrator of ARS, the broad authority and responsibility for coordination of all USDA research as well as administration of research and ARS regulatory activities.

To head the new product and process evaluation staff, Dr. John R. Matchett assistant to the ARS administrator for utilization research and development, has been named director. He will have four staff specialists—one each for the chemical industry, food and feed industry, fiber industry, and commodity economics.

•

Vanderbilt Begins Aerosol Work

The Specialties Department of R. T. Vanderbilt Co., New York, now has in operation complete facilities for experimental aerosol packaging at its Norwalk, Conn. Laboratories. The equipment is being used for the development of new aerosol, cosmetic and household formulations containing Vanderbilt products, principally "Veegum" and "Vancide."

The Specialties Department Laboratory is equipped to package formulations, using both compressed gas and fluorinated hydrocarbon propellants. Both cold-filling and pressure packing techniques are being used.

Formula development projects now under way include work on toothpaste, cosmetic lotions and household products. As new formulas are developed, they will be published in Vanderbilt literature.

•

Byrne to Colgate Post

The appointment of Paul Byrne to the post of new products manager of its Toilet Articles Division has been announced by the Colgate-Palmolive Co., New York. He will be responsible for seeking out new products related to the Division's existing lines, and also will handle the market introduction of accepted new products.

Mr. Byrne joined Colgate-Palmolive in 1955 as an assistant merchandising manager in toilet articles sales. He was appointed an assistant product manager in 1957 and last year became product manager. In this capacity he handled "Cashmere Bouquet Talc," largest selling brand of talcum powder; "Cashmere Bouquet" beauty preparations, "Palmolive Rapid Shave," and the "Palmolive Men's Line."

He is a graduate of Boston University, where he received the B. S. degree in Business Administration.

A NEW SERVICE
"IN-HOUSE" SPECIAL COLORS

Thirty-six established "Special Colors" available in pre-decorated metal for production and prompt shipment in Dome or Stacker styles—*any quantity*. Request your sample kit and quotations now for those "Special Color" requirements.

We Specialize In SERVICE And QUALITY To The Aerosol Industry

West Penn Mfg. & Supply Corp.

809 Second Avenue Brackenridge, Pa.

"A Quarter Century of Specialized Metal Closure Manufacture"

The MOST EFFECTIVE Insect Repellent!

DIETHYLTOLUAMIDE

Cowles DETAMIDE® 95

Cowles DETAMIDE 95 is superior in color, odor characteristics, and stability. No unpleasant odor . . . water white . . . and stays that way. We guarantee a minimum 95% meta-isomer content — the isomer that has the **most repellency!**

Cowles has the capacity to supply your needs immediately and steadily. Write for technical data and prices on your letterhead.

Sold in 5-gallon or 55-gallon drums.

ORGANIC CHEMICAL DEPARTMENT

Cowles CHEMICAL COMPANY

Cleveland 3, Ohio

IFF Expands Flavor Division

International Flavors & Fragrances Inc., New York, last month announced a further expansion of its Flavor Division, and at the same time it was disclosed that Henri van Mameren had been named general manager, and Dr. James H. McGlumphy, technical director in charge of research, manufacturing, and product control.

In July of this year it was announced that the company's van Ameringen-Haebler and Polak & Schwarz domestic flavor units were consolidated, with divisional headquarters at Elizabeth, N. J. Now under the expanded organization flavor activities will be coordinated here for North and South America and certain parts of the Far East. In those areas IFF operates six flavor manufacturing plants, serving the food, beverage, pharmaceutical, and related industries.

Prior to Mr. van Mameren's appointment, he served as managing director of the company's Paris subsidiary, as assistant to the president in Holland, and as general manager of a subsidiary

Van Mameren

McGlumphy

in Brussels, Belgium. Dr. McGlumphy has been associated with the company for more than 25 years and is widely known throughout the industry, having served on many of its committees and as an advisor to the U.S. Government and the armed forces.

In making the announcement, Charles P. Walker, president of International Flavors & Fragrances Inc., said that through this territorial reorganization the company expects to capitalize further on the growing trend toward the world-wide distribution of consumer goods, especially those being manufactured here and abroad by American companies.

CSMA Forms New Subcommittee

A "Consumer Hazard Subcommittee" to study possible hazards in the use of aerosols, methods of pretesting, potential hazards in shipping and storage, revision and refinements of tests now in use, and possible development of new tests, has been formed by the Aerosol Division of the Chemical Specialties Manufacturers Association. The subcommittee will work under the Scientific Committee of the Division.

D. H. Terry, of the Boyle-Midway Division of American Home Products Corp., Cranford, N. J., was named to the post of chairman of the new subcommittee, with Fred Reed, of DuPont's "Freon" Products Division as vice chairman. Other members of the subcommittee are J. J. Buchanan, Continental Can Co., Chicago; S. Jack Campbell, Continental Filling Corp., Danville, Ill.; Clarence Clapp, Western Filling Corp., Los Angeles; Milton Fowkes, Powr-Pak, Inc., Bridgeport; Montfort A. Johnsen, Peterson Filling & Packaging Co., Danville, Ill.; S. M. Livengood, Union Carbide Chemicals Corp., Tarrytown, N. Y.; and Morris J. Root, G. Barr & Co., Chicago. Dr. R. A. Fulton of the Pesticide Chemical Research Section, ARS, Entomology Research Branch of the USDA, Beltville, Md., will act as consultant to the subcommittee.

■

Arch Payne Dies

Arch Payne, recently elected assistant vice-president of Florasynth Laboratories, Inc., New York, passed away suddenly on Oct. 29, while on a business trip in Richmond, Va. He was 60 years old. Surviving are two daughters, Phyllis and Nancy.

Mr. Payne left the Shell Oil Co. 14 years ago to join Florasynth. For the past 10 years, he had been East Coast sales manager.

•

Zenith Chemical Moves

Zenith Chemical Corp., Newark, N. J. custom filler, will occupy a building of its own at 175 Mt. Pleasant Ave., Newark 4, on Dec. 1. Telephone number of the new plant will be HUmboldt 4-8600. The building includes 30,000 square feet of office and manufacturing space.

AERO-CHEM SPECIALIZES IN FILLING

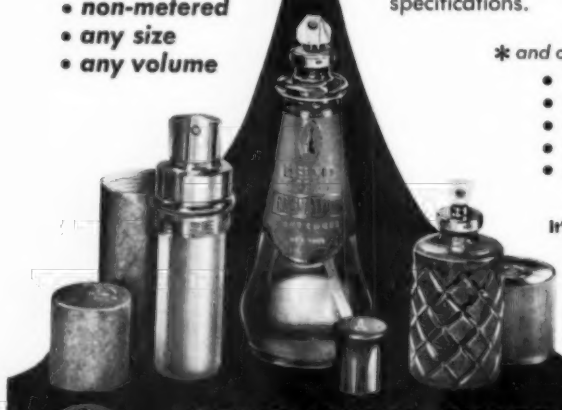
COATED & UNCOATED GLASS BOTTLE* AEROSOLS

- *metered*
- *non-metered*
- *any size*
- *any volume*

Aero-Chem successfully fills the 'new look', low cost perfumes and cologne aerosols to *customer satisfaction;* utilizing the industry's newest low pressure formulations, propellents, valves, actuators and techniques... complying, *always,* to strict tolerances and specifications.

* *and other type containers*

- *Stainless Steel*
- *Aluminum*
- *Metal*
- *Glass*
- *Plastic*



It'll pay you to talk to Aero-Chem first! Let Aero-Chem design and engineer your next aerosol package.

CSMA

AERO-CHEM FILLERS, INC.

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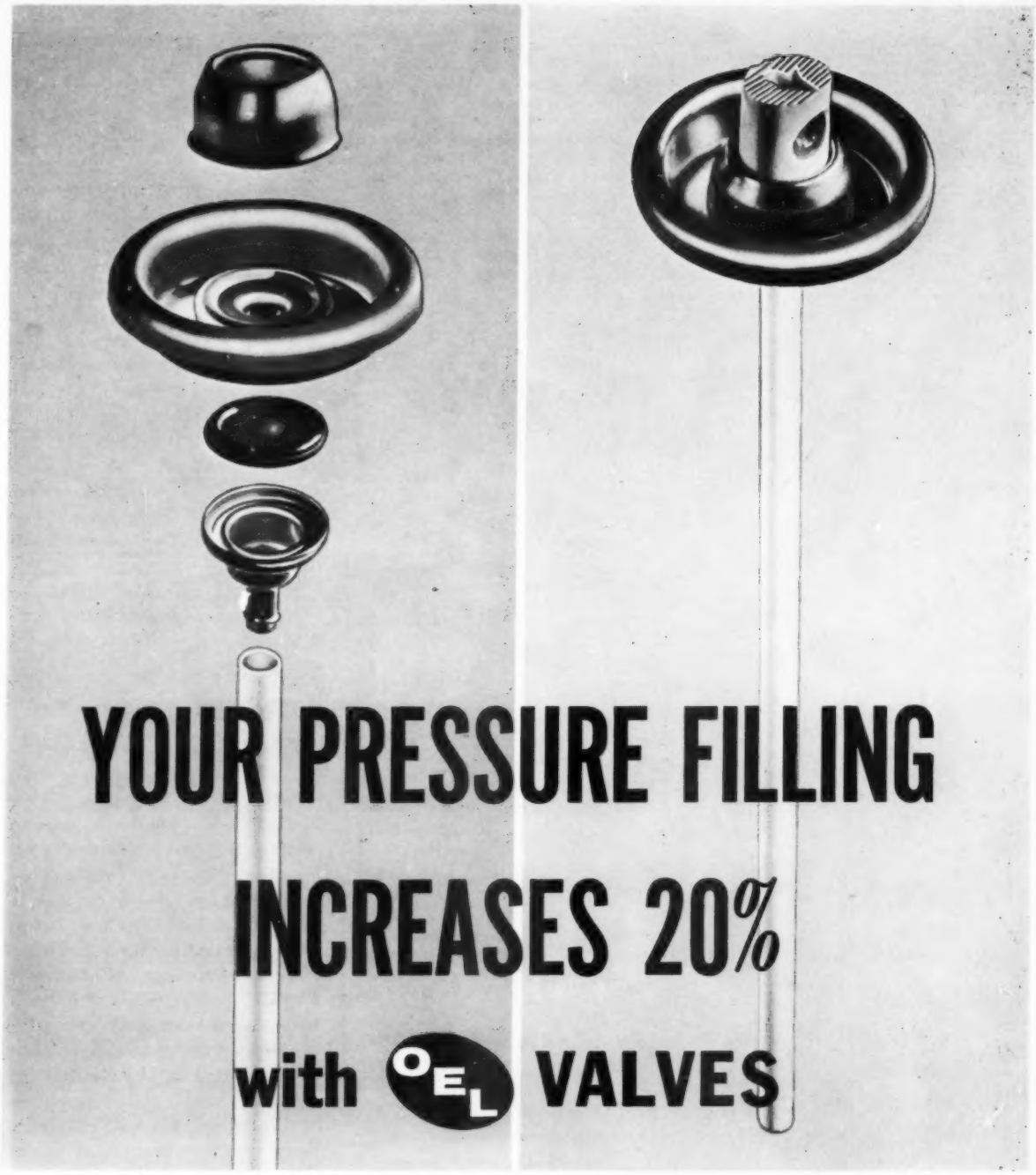
Telephone EDison 3-4181



YOUR PRESSURE FILLING INCREASES 20% with OEL VALVES

Build up your *profit margin!* Look into the cost saving advantages of OEL AEROSOL VALVES, now used for all spray and foam products.

OEL exclusive internal design provides maximum filling area, unmatched in the industry. This increases pressure filling output at least 20% without changing your present equipment.

Prove it to yourself. Sample valves are available for your test.

Other advantages—universal valve simplifies inventory control—adaptable for all products—exclusive retainer eliminates button loss.

OIL EQUIPMENT LABORATORIES, INC., 600 PEARL STREET, ELIZABETH, NEW JERSEY

OEL — *originators of modern pressure filling techniques*

Crown Appoints Hanlon

Joseph T. Hanlon has been appointed manager of advertising and sales promotion of Crown Cork & Seal Co., Inc., Philadelphia. Engaged in Crown's advertising and sales promotion for 20 years, he joined the company in Baltimore in 1938. During his career with the company he has held various advertising assignments, working out of the Baltimore plant for more than 18 years. He was division advertising manager in Baltimore before being named sales promotion manager for the entire company in June, 1958. At that time he was transferred to the company's new general offices in Philadelphia.

Mr. Hanlon has been active in the leading national trade organizations of the bottling, brewing, dairy and packaging industries. He is also a member of the Publicity Committee for the Chemical Specialties Manufacturers Association. Before moving to Crown's Philadelphia General Offices, he held various offices in the Maryland Industrial Marketers Association and served as the organization's president for the 1957-58 term.

Kiwi Buys Bon Ami Subsidiary

Kiwi Polish Co., Ltd., of Australia, last month purchased a 60% interest in the Australian subsidiary of the Bon Ami Co., New York. Bon Ami has a manufacturing plant in Sydney and does an estimated $230,000 volume annually in Australia.

The purchase, according to spokesmen of the two companies, may herald a closer working agreement between the two companies. A study is currently being carried out to explore the possibility of establishment of an international partnership.

Jervis Leary, director of Kiwi, said that the Australian plant would be used to manufacture products other than cake and powder cleanser, and he revealed that Bon Ami products might soon be sold in Hong Kong, Singapore, and other Far Eastern population centers.

Bon Ami currently markets one aerosol product "Jet Spray Bon Ami." Kiwi does not yet have a product in aerosol form.

•

Fuld Expands LA Plant

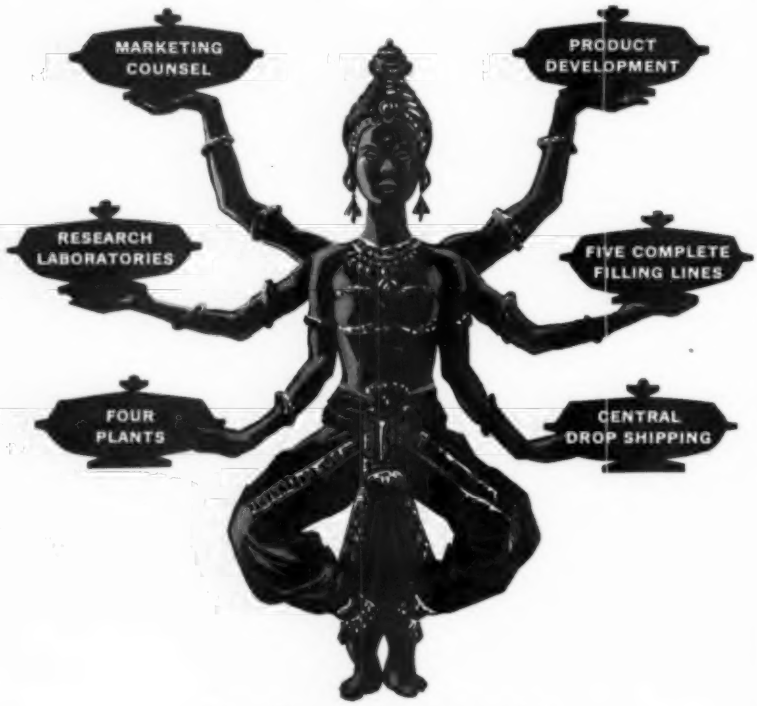
Fuld Brothers, Inc., Baltimore has expanded its production and service facilities of its Los Angeles plant. The expansion will be in some recently acquired additional plant facilities at 1258-1260 Factory Place, adjacent to (and double the area of) the present Fuld Brothers factory.

At the same time, it was announced that the sales offices and showrooms at 1256 Factory Place will be renovated, and new equipment installed, to speed up the processing of orders and the handling of deliveries. New materials handling and pumping equipment has also been installed in the new factory to facilitate production and shipping.

•

Penick Acquires LeGear Co.

S. B. Penick & Co., New York, has acquired controlling interest in Dr. LeGear, Inc., St. Louis manufacturer of proprietary animal health products. Penick reported that the company's president, Dr. Daniel H. LeGear, will continue in that post, and that LeGear's sales, manufacturing, and research activities will remain in St. Louis.



a truly complete service
...from the oldest and leading custom-loaders of aerosol specialties

Sprayon has handled the greatest possible variety of contract-loading assignments for many of the nation's largest manufacturers. This experience, plus Sprayon's outstanding engineering and production facilities, is your best means to a commercially successful aerosol package. Problem product or routine product, get Sprayon's dollars-and-cents answer to your next loading job.

Sprayon
PRIVATE LABEL AEROSOLS

SPRAYON PRODUCTS, INC. • 2075 EAST 65 STREET • CLEVELAND 3, OHIO

Here is a line of aerosol fragrances specially developed by our Perfume Laboratories for pressure-packed items. They'll efficiently mask even the heaviest of chemical odors and give your preparations a pleasing fragrance that adds an effective "plus" to their sales appeal.

You can't afford to miss this terrific combination of fine fragrances, excellent covering power and real economy! Why not send for samples and convince yourself!

FOR ROOM DEODORANTS

Cool Mint #3586 • Clover Blossom #3630
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Prices, samples and full information gladly supplied.

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Small, Accurate Fills

CONTAINERS: vials, bottles, jars, cans.

PRODUCTION: up to 480 fills per minute.

TUBE FILLING: metal or plastic.

COLTON-HOPE

Filling Alcohol to Caulking Compound

VOLUME: ¼ oz. to 1 gallon.

PRODUCTION: models for speeds up to 300 per minute.

PRODUCTS: foods, dairy products, drugs, paints, cosmetics, industrials.

CONTAINERS: bottles, cans, tubes, jars, paper cups, pails.

COLTON-ALPHA

Aerosol

ROTARY AND STRAIGHT LINE: gassers, pressure fillers, shakers, crimpers, testers.

LABORATORY EQUIPMENT: hand operated.

VOLUME: up to 500 cc.

CONTAINERS: cans, bottles and vials.

Send for the new Colton chart of filling machine applications. It shows machine types, capacities, speeds, product types, etc., of the world's most complete line of filling equipment.

ARTHUR COLTON CO.
3452 E. Lafayette
DETROIT 7, MICHIGAN

Pero Forms New Sales Agency

Packaging and Plastics Co., 408 E. Okeechobee Road, Hialeah, Fla., has been organized as a manufacturer's representative agency by Al Pero, former vice-president of Fluid Chemical Co., Newark, N. J., custom filler, and prior to that a pioneer in the plastics and blow molding industry.

Mr. Pero's firm, sales agents for companies in the packaging and plastics industries, will cover the states of Florida, Alabama, Georgia, and South Carolina. They presently represent Averil, Inc., contract packaging, and Industrial Vinyls, Inc., plastic extrusions. Both firms are said to be leaders in the South in their respective industries.

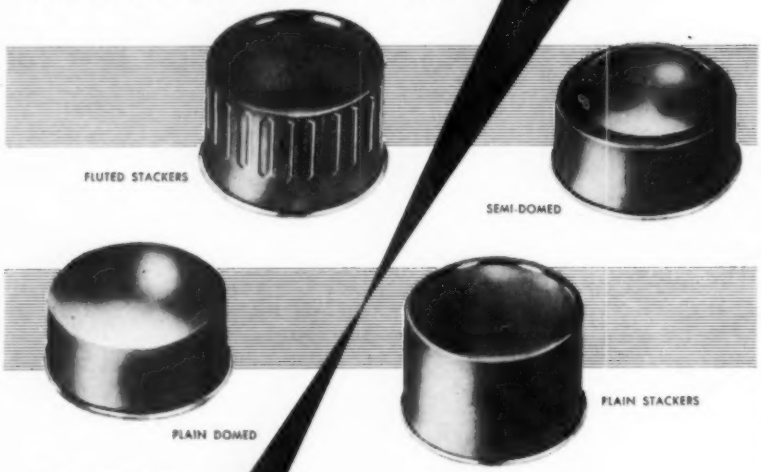
•

F. F. Rauch Dies at 78

Frederick F. Rauch, a sales representative for 23 years with S. B. Penick & Co., New York, died Oct. 22 at the age of 78. Prior to joining Penick, from which he retired in 1957, he was associated with Magnus, Mabee & Reynard, Inc.

NOW...

SUPERIOR SERVICE for the AEROSOL INDUSTRY



We also manufacture tin plate Screw Caps from 18mm to 120mm.

PENN, known for finest service to the bottling industry for over 25 years, is now making tops for aerosol containers.

All of Penn's customers receive superior service and careful attention on every order. You are assured of top quality workmanship, the right price and immediate delivery.

Call or write for information.

Penn CORK & CLOSURES, INC.
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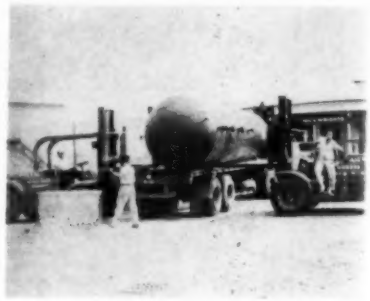
Pace Begins Tank Installation



Pace, Inc., Wilmington custom filler recently began installation of a new bulk storage tank "farm." First unit was this 7800-gallon solvent storage tank, which will be followed by installation of a propellant storage tank to supplement smaller storage units currently in use.

The tank storage "farm" is part of a general company expansion which will include a number of interior plant improvements. One of the latter will be completion of a totally explosion-proof filling room.

•

Simoniz Names Connolly

Arthur F. Connolly has been appointed general sales manager of the Simoniz Products Division, Simoniz Co., Chicago, a leading marketer of aerosol car waxes. He joined Simoniz in February 1954, became assistant sales manager in 1957, and was named sales manager in 1958.

As general sales manager he will be responsible for the administration of the field sales divisions handling Simoniz consumer products.

•

O-I Names MacIver

F. D. MacIver, Jr., salesman in the Chicago branch of the Glass Container Division of Owens-Illinois for the past five years, has been promoted to district sales manager for the company's Closure and Plastics Division. He will be responsible for all plastic sales in the district.

Mr. MacIver joined O-I in 195 and was assigned as a salesman in the company branch in his native Milwaukee. In 1954 he was transferred to Chicago and has been specializing in the sale of glass containers to the food industry in the area.

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Pleased As Punch

to know that AEROSOL AGE is so well read wherever it goes. Many readers have told us their copies go to have a dozen others in their shops or offices before they arrive at their desks — weeks later — dog-eared, marked and cut up.

* * *

Why make such a production of reading AEROSOL AGE when **each one of you** can have a personal copy of the only magazine edited exclusively for the aerosol industry, and at a big saving from the regular rate!

You can receive your copy every month for $2 each a year, just by sending in a group of four or more subscriptions. Group subscription form is printed below for your convenience. (Subs may be addressed to your home or office.)

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Please enter a group subscription for the following:

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City ..... Zone .....
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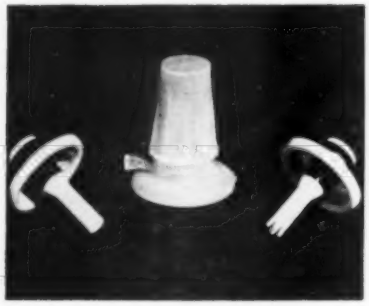
Equipment—Processes—Bulletins—

Tamper-Proof Aerosol Cover



A new, tamper-proof "Tear-N-Scru" aerosol cover, designed as the companion item for its non-metallic "Aercon" tilt valve, has been introduced by Aerated Container Corp., 39 South LaSalle Street, Chicago 3. The new device completely seals the container and must be torn open before the package is put into use. Once the tab is pulled off, the top portion of the closure become a screw-on top.

The valve and cover combinations are designed for all types of foam and liquid products. According to the company, there is no contact between the end of the nozzle and the cap, a feature to prevent accidental discharge of product. The cover will be available in a variety of colors to match package design and color.

Sidney Perlman, Aerated Container's director of sales, points out that the tamper-proof feature of the cap fills a "long-existing need in the industry for a completely water-proof, tamper-proof closure. Such a feature should add greatly to the merchandising appeal of the package."

•

Multi-Purpose Pressure Cartridge

A multi-purpose pressure cartridge charged with 12.35 ounces of carbon dioxide has been introduced on the European market by Kisag AG fur Leicht-metallwaren, Bellach, Switzerland. The capacity of the container is enough for blowing up seven small-car tires or three larger ones. It is also recommended for use as a fire extinguisher, for inflating air mattresses, rafts, etc., for cleaning spark plugs and car engines, etc.

Attached to a specially fitted can holding an insecticide or paint, the cartridge can be used as a propellant source to power an aerosol-type device.

•

Rotary Pressure-Vacuum Filler

A new series of rotary vacuum and rotary pressure-vacuum fillers has been developed by The Karl Kiefer Machine Co., Cincinnati 2, O. Called the "No. 5 Series," the machines are capable of filling from a fraction of an ounce to 10 quarts.

Among the features of the new series are an automatic liquid flow control to assure optimum supply for any selected filling speed; safety devices in the handling system to prevent damage to glass containers, automatic lubrication of all bearings and moving parts, easy dissassembling for thorough cleaning, and gradual acceleration in starting and rapid deceleration in stopping. The series is available with "submerged filling stems" (for use with foamy liquids) and a special overflow handling system. Construction permits conversion into synchronized line drive.

•

Compressed Gas Transport

Two new models of compressed gas tank trailers have been announced by Arrow Equipment Co., P. O. Box 2682, Memphis, Tenn. Both are made of A202 Grade B steel and are equipped with 12-ply tires, cast steel wheels, and have a 265-pound working pressure. The smaller of the two models has a 6800 water-gallon capacity, the larger a 7730 gallon capacity. The tanks can be used to store and transport liquefied petroleum, fluorinated hydrocarbon, carbon dioxide, and other aerosol propellants.

Antara Offers PVP Bulletin

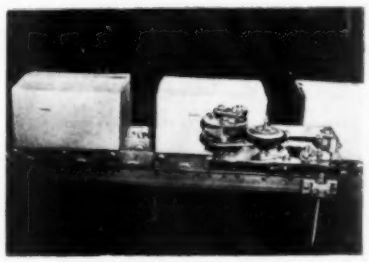
An expanded bulletin on new types of commercially available vinylpyrrolidone/vinyl acetate copolymers and their applications has just been issued by the Antara Chemicals Division of General Aniline & Film Corp., New York. These materials, first introduced as 50% ethanol solutions, are now available in various physical forms as well as in several monomer ratios. Solid, emulsion and solution types now provide specific materials suitable for diverse product requirements, and for use in various aerosol systems.

This two-color, 20-page publication outlines recently developed uses of these acetylene-derived chemicals. Technical data are presented in charts, and practical formulations are given for use in adhesives, hair-grooming agents, protective films, shoe polish, plant spray, decorative sprays, and anti-tarnish coatings.

The new bulletin describes stability factors, viscosity ratings, compatibility, and physiological data. A copy of Bulletin AP-33 Rev. is available by writing to the company at 435 Hudson Street, New York 14.

•

Kiwi Offers New Case Coder



A consecutive numbering machine for shipping cases has been developed by Kiwi Coders Corp., 4027 Kedzie Ave., Chicago 18. Installed on a conveyor line or in a case sealer, the unit marks any length case from eight inches, utilizing a steel-type head which prints a maximum of seven digits in one-quarter-inch Gothic type.

•

Corrosion-Resistant Pumps

A new line of centrifugal chemical pumps with a 14-gauge stamped and drawn housing has been developed by the R.S. Corcoran Co., Joliet, Ill. Such alloys as steel, brass, monel, and stainless may be supplied.

HAIR SPRAYS

set new high sales curves in aerosol cans by Continental

Before Aerosols, hair sprays didn't exist. In 1957, hair sprays sold over 95 million cans, tops in the aerosol market. Continental not only supplied many of those cans, but to begin with, developed the low pressure can that started the aerosol selling revolution. For your hair spray, you can't do better than a superbly lithographed Continental aerosol. You get packaging glamour at surprisingly low cost because Continental aerosols are most economically priced. And you choose from eight different sizes. Continental's greatly expanded production facilities assure fast delivery of all the cans you need, wherever you're located. Research and engineering services are available, too. For packaging glamour at lower cost, call Continental today.

CONTINENTAL CAN COMPANY

CONTINENTAL MAKES AEROSOLS FOR EVERY USE . . . IN THE WIDEST RANGE OF SIZES

Eastern Division: 100 East 42nd Street, New York 17
Central Division: 135 South La Salle Street, Chicago 3
Pacific Division: Russ Building, San Francisco 4
Canadian Division: 5595 Pare Street, Montreal, Que.

PAINT | INSECTICIDES | SPRAY BANDAGES | FRAGRANCE | DEODORANT | SHAVING CREAM | SHOE POLISH | ANTISEPTIC

A new Schimmel product

Bouquet for Aerosol
S 7738 . . . $5.75 lb.

A modern well rounded
perfume blend with
floral overtones.
Very versatile. . . .

Can be used, for instance in
Hair Sprays
Personal Deodorants
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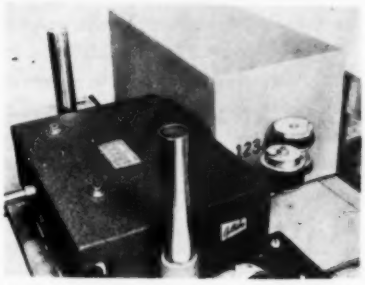
New Gottscho Case Coder



A new conveyor and case-sealer attachment that automatically code imprints the rear surface of cartons and shipping cases as they travel along the production line has been developed by Adolph Gottscho, Inc., Hillside 5, N. J. Said to be the first such unit ever developed, the "Series 210 Roladoder" is able to print any size carton from three inches high.

The coding head of the device automatically moves out of the housing as the container travels by, rolls its imprint across the rear surface, and then retracts to its original position.

•

Pyrenone Technical Bulletin

Data on industrial-type Pyrenone metered aerosol insecticides is presented in a recent technical bulletin issued by Fairfield Chemicals, Food Machinery and Chemical Corp., New York City. The bulletin is offered as a guide to insecticide manufacturers, aerosol fillers and packagers.

It contains detailed information on insecticides utilizing Fairfield's "Pyrenone Metered Aerosol," a concentrated Pyrenone formulation of piperonyl butoxide and pyrethrins which is said to offer six times the effectiveness of conventional aerosols of equal size. Thus, a two-oz. "Midget" would be equivalent to a 12-ounce conventional aerosol, and a 12-ounce "Midget" to a five pound bomb. A 12-ounce container reportedly controls insects in 500,000 cubic feet of space as compared to a maximum of 113,000 cubic feet controlled by conventional 12-ounce aerosols.

The nine-page bulletin includes performance data on concentrated Pyrenone as well as formulations and suggested labels for metered aerosol insecticides. Also included is a source list of aerosol components and a section devoted to use of the concentrated Pyrenone insecticide with automatic dispensers.

Copies of the bulletin may be obtained by writing to the company at 441 Lexington Ave., New York 17.

•

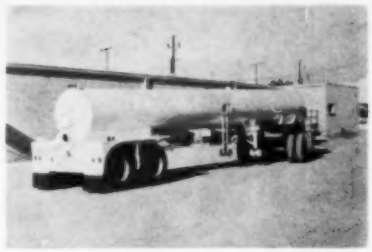
New Lifting Devices Offered

A new type lifting device said to be capable of lifting up to 2400 pounds of plate steel, barrels, and other nonporous materials has been introduced by the Vac-U-Lift Co., Salem, Ill. The unit operates by vacuum and employs a 1/3 h.p. motor, in addition to a vacuum pump, filters, muffler, and check valves. It is expected to be of use in lifting small propellant drums and ingredient barrels in the aerosol filling plant.

•

Aerosol Propellant Tanktruck

Master Tank & Welding, Dallas, Tex., and Quincy, Ill., is currently shipping transports for hauling aerosol propellant to all parts of the world. Pictured is a custom designed 40 ft. transport, measuring 48″ in diameter



with a 3650 gallon capacity tank.

Made to customer specifications, the transport has a 250 PSI designed pressure, and is fabricated to meet all ASME code requirements of the National Board — UL approved. The equipment is mounted on a Reyco Challenger #21 tandem, with 10 x 12 12 ply tires and tubes. Other features include TK 500 Timken Axles and the dual ratio landing gear. As standard equipment it has 16½ x 7″ air brakes, detachable tire rack and ladder, and nail deflectors.

The rotary and outage gauges are recessed inside the tank. The units are fully X-rayed, and have been stress relieved. They are finished in a primer coat and white process enamel.

STANDARDS MAINTAINED • FORMULAS PROTECTED • QUALITY AEROSOLS

pace

a new dimension in private label and contract AEROSOL PACKAGING

using inert compressed gases & all conventional propellents

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pace for PRODUCTION RUNS

pace for SAMPLE RUNS

pace for PRODUCT FORMULATIONS

pace for PACKAGE DESIGN

•

over 100 use-tested formulas on hand

pace incorporated

P. O. BOX 206 · WILMINGTON 99, DEL.

EAST 8-4151

write for list of formulas and other data

D&O Christmas Package

Dodge & Olcott, Inc., New York essential oils and aromatic chemicals producer, is sending this Christmas gift package of two aerosol containers

to its customers. Theme this year is "Fine Art", with one container representing classic Greek art, and the other modern sculpture. Perfumes were created by D&O and filled by the company's Aerosol Division.

•

Fluorescent Aerosol Caps

Sterling Seal Co., Erie, Pa., last month announced development of a new line of fluorescent colored aerosol caps. The colors in the new line include three shades of red, a pink, two oranges, and two greens. Color samples and prices are available directly from the company.

•

Metered Detergent Package

A new "super" detergent packaged in an aerosol container equipped with a metered valve has been developed by Par Industries, Inc., Los Angeles custom filler, and is currently being offered to marketers of soaps and detergents. The valve measures out one-quarter ounce per actuation and, according to Sylvan Lefcoe, president of Par, the package can compete on a price level with many liquid detergents on the market.

The company reports that one "squirt" of the valve is enough to wash the entire dinner dishes of an average family. In laboratory tests recently completed, 120 dishes were washed in the new detergent formulation compared to an average of 83 dishes in an equal amount of a conventionally-packaged product now on the market. The formulation was developed in Par's laboratories, and the metering valve was also engineered by Par. The new package is being offered in a 16-ounce container.

•

MM&R Offers New Catalogue

A completely revised and enlarged catalogue of its products has just been issued by Magnus Mabee & Reynard, Inc., 16 Desbrosses Street, New York 13. Feature of the 38-page booklet is a special section on perfume oils for aerosol cosmetics and toiletries. Included in this section are suggested percentages of perfume materials for aerosol antiperspirants and deodorants, colognes, foam hair dressings, hair lacquers, hand lotions, shampoos, shave creams, suntan lotions and a wide range of commonly used aerosol insecticide materials.

•

British Aerosol Booklet

"All About Aerosols," a new explanatory bulletin about the pressurized package and how it works, has just been issued by the Fragrance Bureau, 44 Albemarle Street, London, W. 1. One of the features of the booklet is a listing of perfumery marketers in Great Britain which currently offer aerosol versions of their products.

•

Builder's Cold Filler

This new small-production cold filling unit for the aerosol industry has been introduced by Builder's Sheet Metal Works, Inc., 108 Wooster St., New York 12, N. Y.

New Range of Cap Colors

West Penn Mfg. & Supply Corp., Brackenridge, Pa., has just announced the availability of 36 established special colors in pre-decorated metal caps, both dome and stackers. The announcement said the company will accomodate absolute minimum orders of special colors, where previously runs of 50,000 were necessary on all except the standard colors.

•

U.S.I. Elevates Brooks

Albert C. Brooks has been named manager of the Baltimore Sales Division for U. S. Industrial Chemicals Co., Division of National Distillers and Chemical Corp., New York. He succeeds James F. Whitescarver who has retired.

Mr. Brooks has been associated with U.S.I. for approximately 25 years. He joined Baltimore sales in 1940 and had been assistant manager of the Baltimore Division.

•

Resistance Survey

(*From page* 46)

mained effective even on resistant roaches.

The mixed toxicant approach *did* work and the original high level of performance was reestablished. This appears to be a current solution to the roach problem. Unfortunately, roaches are resistant, according to latest report, to most residual insecticides. We may be ahead of them this year. But the years to come will see a growing resistance, which the simple toxicant mixing will not overcome. With this solution, you might say, we're just one jump ahead of the roach, but unlikely to stay there long.

Once the degree, extent and danger of insect resistance had been defined, the question naturally arose as to whether this picture truly reflected the situation in the field. Was insect resistance felt only in isolated areas, or could every home owner be expected to be faced with this problem?

Frequently in studies of this type, the results of tests limited to a few isolated areas are expanded to include the whole country. If a practical picture of resistance is desired, some method must be found to determine the distribution of resistant flies and roaches.

To resolve this, a questionnaire was prepared and mailed to authorities in each state charged with the responsibility of following insect control patterns, evaluating insecticides, and recommending control measures for the state. These included State Extension entomologists, land-grant college entomologists and a selected group of members of the Entomological Society of America. As individuals, they were asked to fill out the questionnaire expressing their opinion on the prevalence of resistant insects in their respective states.

It should be kept in mind that we were not attempting evaluations of any degree of resistance or confirmed reports, but rather to get an opinion from as great a cross-section as possible to determine how widespread the problem of resistance was around the United States, and whether it was a problem encountered only by those looking for it, or whether it was a day-to-day problem of insect control. The questionnaire was also specifically limited to flies and roaches.

225 letters were mailed and 110 received. Compiled by individual and state, they gave a national picture of the resistance problem.

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• thorough quality control
• on time delivery

CONFIDENTIAL PRODUCT DEVELOPMENT — Our staff transforms your "aerosol" ideas into a finished "ready-to-market" package.

TOP RESEARCH AND FORMULATION Combining aerosol experience with imagination to produce a superlative aerosol product.

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DIP TUBING

OUR OWN VIRGIN STRESS-CRACK RESISTANT FORMULAS SUPPLIED IN WHITE OR NATURAL — COILED, SPOOLED OR CUT TO EXACT LENGTH

for aerosols, atomizers, squeeze bottles, lotion pumps, garden sprays

Unique automated process controls quality, size & tolerance.

Lab report furnished with each batch

ACTION PLASTICS INC.
50 California Ave. • Paterson, N. J.

The first question was general, "Have you encountered resistant roaches in your state?"

Answer:

Individual Returns	— Yes	86%
	— No	14%
By State	— Yes	93%
	— No	7%

When compiling state totals, we frequently received two or three returns per state. If one or more returns reported resistant insects we considered that state as having resistance problems.

The second question asked, "Do you feel resistant insects are specifically resistant to one or more of the following toxicants?"

Chlorinated hydrocarbons led the list of toxicants to which insects were resistant, but organo-phosphorus compounds were also mentioned. It apparently only required widespread use of any material over a period of two to three years to establish a definite resistance pattern.

While this survey was being made other experimentors were collecting flies in various parts of the country, and testing them using the Aerosol Test Method. They found that DDT would kill only 10-25% of these houseflies which were collected from such areas and cities as:

Great Lakes
San Francisco
Philadelphia
New Orleans
Maryland
San Diego
St. Louis

This served to substantiate further the reports sent to us of the widespread prevalence of resistant houseflies.

Similar answers were received to the same question regarding roaches. The most widely used chlorinated hydrocarbons had the highest resistance reports and, as was to be expected, urban areas reported greater resistance than suburban.

To determine just how severe insect resistance is the survey asked, "Have you encountered any situations where insect resistance was so severe that a change in control methods was required?"

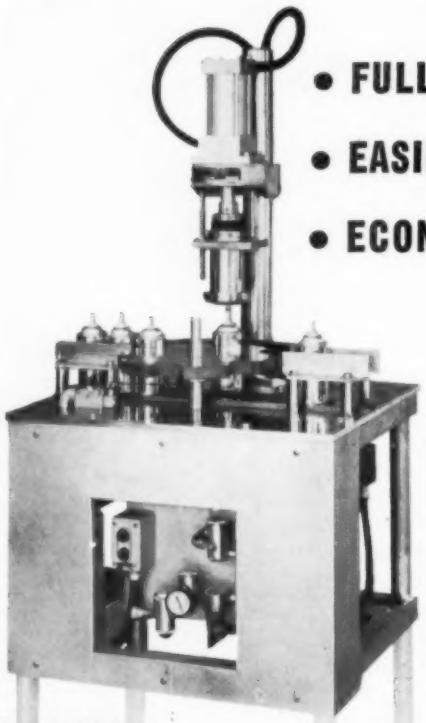
Comparing these figures with our first question indicates that severe resistance was prevalent in most areas. Where 86% of the individuals reported resistance, 73% reported changing toxicants was required to kill flies and 49% required a toxicant change to kill roaches.

In the U. S. then, insect resistance is a real problem and no longer an isolated laboratory curiosity. To guard against failure of toxicants to perform their intended function, great care should be taken in the choice of toxicants and evaluations of performance. If the toxicants are chosen solely on the basis of nonresistant colonies, this may lead to serious problems when such formulae are used in the field.

Mixing toxicants of different basic chemical composition is still one way of overcoming resistance, but the situation is a dynamic growing problem to which manufacturers should give great attention when preparing products for market.

It is apparent that with careful formulation, aerosols can still be made

NEW AEROSOL CAN CRIMPERS



• FULLY AUTOMATIC
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• ECONOMICAL

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Model I.H.A.C.
CRIMPER
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CODE DATER

FEATURES:

1. Crimps and Code Dates simultaneously.
2. Speeds up to 70 cans per minute.
3. Adjustable for both depth and height of crimp desired.

Many other features. Write for free literature on this machine and other aerosol equipment: Adjustable Crimping Heads • Valve Feeders • Code Daters • Gassers and Shakers • Laboratory • Hand Operated • High Speed Automatic Units.

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which do not rely too heavily on resistant susceptible toxicants. Products such as Strobane continue to control resistant flies and even DDT and methoxychlor can still be used *if* properly formulated. This, in fact, is a sound solution since not all flies everywhere are resistant. Such a formula loses no effectiveness against resistant flies, and performs even better in areas where resistance has not yet developed.

The introduction of the organophosphorus compounds came at a later date than the chlorinated hydrocarbons and reports of roach resistance was less extensive. If a crude evaluation can be made by averaging all the reports of resistance to chlorinated hydrocarbons as compared to organo-phosphorus compounds, we received about twice as many reports of resistance to the former.

The interesting feature was, however, that the older toxicants seemed to have a general pattern of resistance all across the United States, while the new organophosphorus resistance reports came primarily from states with large urban populations. It gave the impression that it was just a matter of time before resistant roach reports became universal for all the presently available residual toxicants.★

CSMA Meets

(*From page* 51)

Movement in Drug and Grocery Stores," and Mr. Barnett on "What Grocery Chains Think of Aerosols." On the same program will be Ralph A. Crane, market research manager of "Freon" Products Division of DuPont ("The Potential for the Aerosol Market"), and William C. Sims, associate editor of *Modern Packaging* ("Build Greater Aerosol Sales Through Better Packaging").

The Aerosol Division meeting scheduled for the afternoon of Wednesday, Dec. 9 will be devoted mainly to technical papers, one by a container manufacturer and the other by all four of the fluorinated hydrocarbon propellant producers. R. H. McCarthy, Jr., sales director of the Bradley-Sun Division of American Can Co., Hillside, N. J., newest entrant into the aluminum aerosol container field, will report on the "Status and Future of Aluminum Aerosol Containers." His paper will outline the history of the aluminum aerosol container in the U.S. and Europe, and will review those product types for which a potential exists in an aluminum container.

Other papers, in order of their presentation, include "A Study of Glycol-Alcohol Propellant Systems," by Paul A. Sanders, of DuPont's "Freon" Products Laboratory; "Effects of Fluorinated Propellants and Methylene Chloride on Various Plastics," by James A. Brown, of the "Genetron" Aerosol Technical Service Laboratory of General Chemical; "Low Cost Water-Based Aerosols," by D. C. Geary, of the "Ucon" Aerosol Technical Service Laboratory of Union Carbide; and "Solubility Parameters and Their Application to Aerosols," by Allen B. Reed, Jr., of the "Isotron" Aerosol Technical Service Laboratory of Pennsalt Chemicals. The latter paper outlines a method for determination of solvents and polymers and the calculated values for propellants, together with a brief discussion of the application of these values in aerosol formulation.

The Wednesday afternoon Aerosol Division meeting will also include the bi-annual report of the Aerosol Division chairman, E. J. McKernan, president of E. J. McKernan Co., Elgin, Ill., and the report on the work of the Scientific Committee by Walter J. Beard, research director of Risdon Mfg. Co., Naugatuck, Conn. A. H. Lawrence, Jr., of DuPont's "Freon" Products Division, will report on the results of the first Aerosol Technical Clinics in New York and Chicago.

The final report of the meeting will be an important one by Normal A. Odell, president of Normal Odell Associates, public relations counsel for the 1959-1960 Aerosol Promotional and Publicity Campaign sponsored by the Aerosol Division of the CSMA. Mr. Odell will devote the major portion of his report to a summary of the results of a special aerosol supermarket

HEADLINERS IN AEROSOL PACKAGING
We're adept custom fillers of everything from perfumes to household products.
We can help you long before your product reaches the packaging stage, and afterward as well — through new product development, quality-controlled production, bulk storage and pressure and "cold fill" facilities.
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New product development
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Pressure and "cold fill" facilities
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APPLY MORE THAN 100 AEROSOL VALVES PER MINUTE WITH THE CAPEM H-O-FV

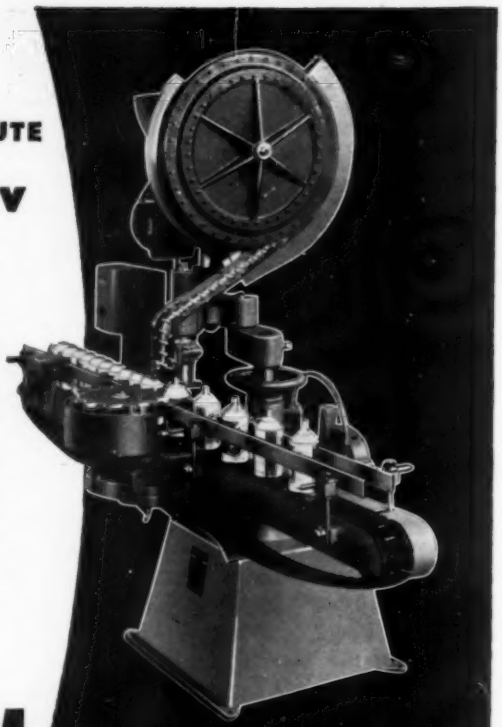
If applying aerosol valves is a bottleneck in your packaging operation, here is your solution—the CAPEM H-O-FV.

Rich Products Corp., Buffalo, N. Y., manufacturers and distributors of Rich's "Whip Topping", recently installed one of these machines. Production has increased and results have been most satisfactory since installing the H-O-FV on their aerosol container line.

The Model H-O-FV sorts and applies aerosol valves to whipped cream containers at speeds in excess of 100 per minute. Stainless steel and chrome-plated parts are used whenever necessary to comply with dairy industry regulations. Electric switch gear is mounted conveniently above conveyor to facilitate washing the line at shut-down time.

Changeover from one container size to another is simple and easy.

For complete information on the CAPEM H-O-FV and other Consolidated packaging machinery, write Sales Manager, Consolidated Packaging Machinery Corp. [a subsidiary of International Paper Company] 1400 West Avenue, Buffalo 13, N. Y.



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Liquefied Gas Manipulator w/Universal Head
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One inch opening Can Closing Press
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Density Units
High Pressure Test Bombs
Can Sampling Units—Piercing or Valve Actuating
Pressure Gauging Unit—Pressure Balance or Water Filled
Test Ovens—Standard or Custom Built
Instantaneous Chiller Units—Mechanically Refrigerated
Electric Hot Water Test Bath
Hot Water Bath Transfer Baskets Safety Top Tank Racks
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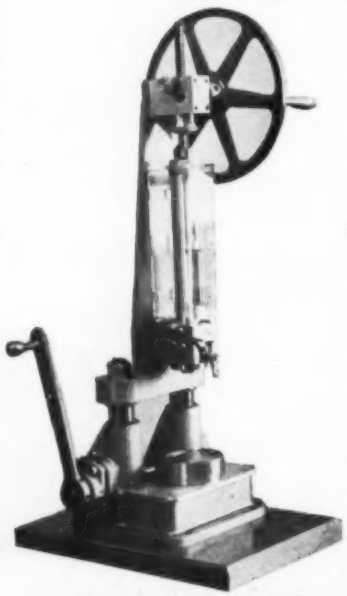

Foresman Liquefied Gas Manipulator

Apparatus Division

ROBERT A. FORESMAN, JR.

(Aerosol Consultant)

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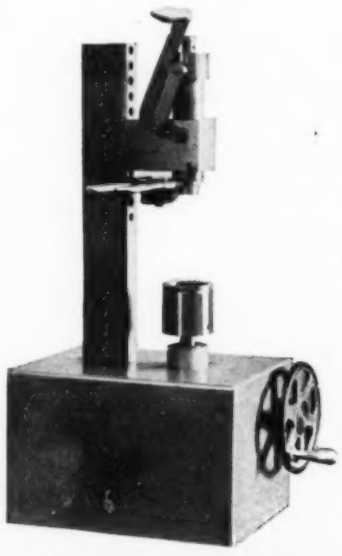

Foresman Hand Operated Vial Capper

demonstration held at Rickel Bros. store in Succasunna, N. J., Oct. 22 through 25. The report will include results of an interview survey conducted during the demonstration to determine consumer opinions of and complaints against aerosols.

A symposium on non-agricultural spraying equipment will highlight a morning session of the Insecticide Division on Dec. 8. Philip Hauser of Root-Lowell Manufacturing Co. will be moderator. The papers and their authors include: "Household and Dairy Sprayers," by T. B. Welsh of Gulf Oil Corp.; "Mill and Industrial Sprayers," by W. L. Brahm of B&G Co., Plumsteadville, Pa.; "Lawn and Garden Sprayers," by David Lewis, H. D. Hudson Manufacturing Co., Chicago; and "Sprayers for Parks and Recreational Areas," by the Superintendent of Capital Grounds, Washington, D.C.

"Insect Resistance," will be reviewed by Robert H. Nelson, secretary of the Entomological Society of America, Washington, D. C., at Dec. 9 session of the Insecticide Division. Morton Beroza of the Agricultural Research Service of U.S.D.A., Beltsville, Md., will be heard on "Recent Developments in Insect Attractants." T. Carter Parkinson, McCormick & Co., will speak on a marketing subject.

At the luncheon on Dec. 8, the 1959 CSMA Achievement Award will be presented to H. W. Hamilton, association secretary. David W. Kendall, special counsel to the President of the United States will be the luncheon speaker.

Award winning aerosol packages will be on display during the meeting and for the first time the Waxes and Floor Finishes Division will sponsor an exhibit of floor coverings and floor care products.★

Community Pharmacists

(*From page* 73)

matter covered in the outline with the thought that it will become a part of a regular course. This subject has also been included in a Manufacturing Pharmacy Course. For the practicing pharmacist, one section of a "Phar-

Announces

NEW Spherical Disposable Containers

TO PUT PRESSURE BEHIND YOUR SALES

● Manufacturers, fillers, distributors, dealers, and users are discovering new sales appeal, new convenience, new compact size with TMC Spherical Pressure Containers.

They open new marketing opportunities for fire extinguishers, oxygen resuscitators and an infinite variety of other products. Distinctive spherical shape provides the most economical container in size... in capacity... in working pressure... and in low cost.

TMC spherical containers are made in high volume to precision standards that fit automatic filling machines. Write or phone for full information on these new containers for your product.

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- Various sizes with working pressures from 190 to 1750 psi.
- Easily equipped with spray valve, nozzle, oxygen mask or other fittings.
- Spherical shape saves space.
- All containers individually tested under water.
- Available in choice of colors.
- Write, phone or wire giving size and pressure requirements.

Millions of TMC King Size Disposable Containers Are Building Sales!

TMC King Size cylindrical containers have become standard of the Aerosol Industry. They are made in standard sizes of 55, 75 and 132 cubic inch capacities. Special sizes quoted on request. Write or phone for Selection Guide No. DC-559.

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that have proved their effectiveness in the production of the best selling industrial and consumer products

- MINT BOUQUET no. 3121
- APPLE BLOSSOM no. 3122
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- OIL WISTARIA no. 3124
- OIL GARDENIA no. 3125
- OIL BOUQUET E.T. no. 3126
- OIL BOUQUET P.C. no. 3127
- OIL BOUQUET H.D. no. 3128
- OIL BOUQUET K.L. no. 3129
- OIL BOUQUET H.C.S. no. 3130
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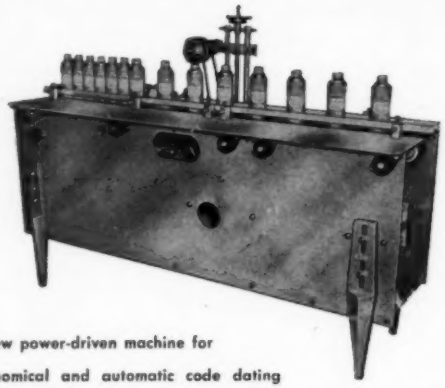
Aerosol Container

CODE DATING MACHINE



a new power-driven machine for economical and automatic code dating the concave bottoms of pressurized cans or flat bottoms of other round containers with work table area. Will mark top, bottom, or both at the same time.

Send details on your specific marking problems. Literature available on all types of applications.

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Cover Caps

Dome

Samples Upon Request

Plain & Fluted Stacker

New Overall **FLATTOP**

Eastern Cap & Closure Co.
725 N. Haven St., Baltimore, Md.

macy Congress" held at St. John's University, March 1959, was devoted to a discussion and demonstration of aerosols and aerosol filling. Future plans call for the sponsoring of an aerosol technology seminar and a formal aerosol technology course which is to include laboratory instruction. This program not only adequately covers the needs of the community pharmacist, but affords the opportunity to those interested in this field to undertake further studies and research. The aerosol industry is in need of technically trained individuals possessing a pharmaceutical background.

Considering that aerosol products are handled to such a large extent by the pharmacist and show possibility of increasing in number and kind during the coming years, aerosol technology should be included in the curricula of the Colleges of Pharmacy. A basic knowledge of aerosol technology will prove to be rewarding to the community pharmacist and enable him to perform another professional activity.★

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Consultant's Corner

(*From page 75*)

brought to light *within the plant*. This may cause some minor chaos, but at least the consumer will not bear the brunt of the explosion. Note that the above conditions will obtain in large numbers (rather than so-called "statistical quantities") of cans if any one of the mistakes has been a basic human error in production of components or preparation of the plant facilities.

Improper closing operations, faulty container construction, poor application of gasketing, faulty valves and damage to valves during pressure gassing can all cause leakage of contents which may result only in poor packages getting out. However, ingredients can include materials which will separate into flammable fractions and if leaks are not picked up at the time of packing it is entirely possible for subsequent warehouse accumulation of flammable or explosive liquids and vapors to develop (with resultant potential disaster).

What has been said so far is only by way of proving wrong those who think the water bath is "only a gesture" to be avoided whenever possible.

Almost as bad is the situation which can develop where the proper water bath is used, but with no full time inspector on hand to observe and pull out faulty containers. The theory in this case is that any dangerous conditions will be revealed by explosions or bulged containers at the bath discharge (or something of that nature) and that any leaks not obvious to casual glancers-in are not important enough to warrant the cost of assigning personnel to the specific job of water bath inspection. To those who do not realize it, this last thought smacks of criminal negligence toward employees, since a bulged container has a potential to wreak real havoc (for eight years my own face has been witness to this type of accident —although it is not the result of a

For those interested in
Carbon Dioxide Propelling of products
from a pressurized can, we offer

SNOW-MAN
DRY ICE MAKER

with adapter for making pellets ½" diameter x ⅝" long.

Two of these pellets in an empty 6 oz. can will create a pressure of approximately 80 lbs. Two of these pellets in a similar can half filled with water will create the same pressure due to the water absorbing some of the CO2.
For experimental work with CO2, the SNOW-MAN is a most valuable aid.
The SNOW-MAN may also be used to produce dry ice with Aerosol cold filling. The dry ice is used in conjunction with coils of copper tube cooling the aerosol propellants well below their boiling point so they can be handled in open containers.

PRICES
$86.— 3 oz. Size * 12 oz. Size..—$130.—
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$106. .....TOTAL..... $150.

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THE AMCO HAND CRIMPER
FOR SMALL LOT AND LABORATORY WORK

1. Manually operated, short stroke and multiplied leverage lessen operator fatigue.
2. Single stroke action locates can, seats valve in position, and crimps.
3. Keyway guided head keeps crimper jaws centrally aligned for all can heights.
4. Convenient . . . can be mounted anywhere.
5. Completely enclosed for safety . . . no moving parts exposed.
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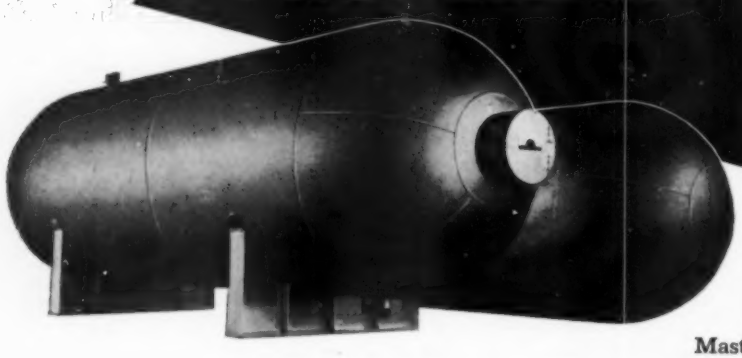
PROPELLANT PRESSURE VESSELS of all sizes



Engineered to fit your requirements

Master Tank & Welding, one of the oldest fabricators of ASME pressure vessels for the petroleum and the butane-propane industries, is now producing propellant pressure vessels for the aerosol industry. Both Master plants at Dallas, Texas, and Quincy, Illinois, are equipped with the most modern steel fabricating equipment to assure you of the utmost in safety and quality. This modern equipment also means competitive prices. Send us your specifications for quotation and delivery. No obligation, of course.

FROM 150 GALLONS TO 70,000 GALLONS

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production plant accident). In the long run, of course, such an approach is wrong. The cost of packages, which either do not satisfy the customer or which in some way present a hazard cannot be measured in terms of the value of the packages involved; at stake is brand or product or contract filler acceptance.

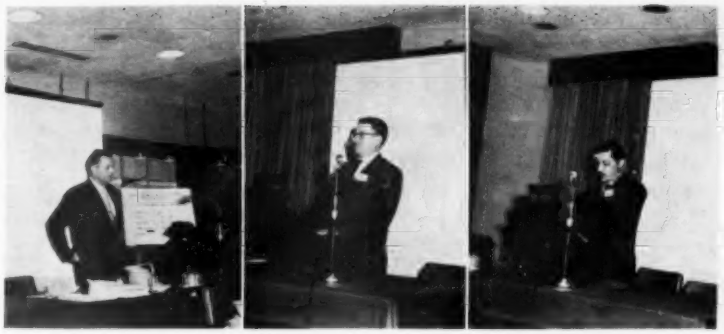
Other aspects of production quality control will be dealt with in later columns, but none will be more important than this one. Your water bath is the safety fuse between you and your customer—do not use the "penny" approach and sacrifice many dollars worth of reputation and goodwill.★

CMCS Meets in Toronto

(*From page* 42)

practices tends to be more cognizant of insect infestations and therefore more apt to use insecticides, Dr. Gray reported. He advised marketers of such products to instruct their retailers to recommend only the best product for the job required, even though it may not be the product of that marketer. He too emphasized that one of the most important factors in safety and repeat sales is careful instruction of the customer on use of the toxicant materials.

A SPECIAL panel on tariffs, an important consideration in Canadian-U. S. trade, was the highlight of the first formal day of meetings on Tuesday, Nov. 3. The two panel members were G. H. Glass, vice chairman of the powerful government Tariff Board, and J. A. Davis (Du Pont of Canada), chairman of the Chemical Industry Tariff Committee. Moderator of the panel, A. Robins of Cartier Chemical Co., Ltd., Lachine, Quebec, prefaced the discussion with the statement that tariffs in Canada had "grown like Topsy as the nation emerged from a forest and agricultural producer to a major manufacturing country." He said that the adoption of the Brussels Nomenclature for chemical product terminology had given tariff discussions in this field some direction and orientation.



Three of the aerosol speakers at the CMCS were Glen L. Piper (DuPont), Dr. Winston Reed (Reed Research), and Victor DiGiacomo (Givaudan-Delawanna).

The legislative procedure under which tariffs, and tariff changes, are enacted, was outlined by Mr. Glass. He explained that the Customs Department is responsible for administering law and for initiating rate of duty reductions or wording changes, while the Department of Finance is responsible for tariff policy and for introducing changes in existing laws. Tariffs on any product or material can only be increased through an act of the Federal Parliament, he said.

Mr. Glass explained that the Tariff Board is responsible for hearing appeals (directed to the Deputy Commissioner of Internal Revenues) on rates and interpretations, as well as with conducting inquiries and making reports on proposed legislation to the Minister of Finance (on his request). He reported that the Chemical Reference to the General Tariff Law would be considered early next year, and that it will most likely be considered in categories of related products.

Mr. Davis, whose committee has worked closely with government agen-

cies toward evolving a Chemical Reference, explained that the Brussels Nomenclature was adopted (instead of the U. S. system, which he said lacked a logical grouping) because it offered a good system already widely used in international trade. The Chemical Reference, he said, would list from 12,000 to 14,000 common and standard names classified as to nature, structure, growth, etc.

TOO much disparagement of the products of one's competitors not only hurts the competitor, but in effect works to hurt the industry as a whole, J. L. Brenn, president of Huntington Laboratories, Inc., Huntington, Ind., declared in a luncheon address. Selling, he said, is a combination of conversion (capturing the customer of another supplier) and creation of new business, and though neither should be overlooked, creation of new business is the most interesting of the two. "The aim of the salesman in the chemical specialties business should be not merely to sell, but to *create a customer*. He should be certain the product will do the job for which it sold, and should refrain from selling it under any other conditions."

The chemical specialties marketer, Mr. Brenn emphasized, should bend all his efforts toward making the best product in any category and selling it on that basis. Selling any product on a false basis, is at best an expedient and will never serve to build a long-term customer.

The peculiar corporate set-up of the Gold Seal Co., Bismarck, N. D., marketer of chemical specialties products, was described in detail by Harold Schafer, board chairman and founder of the company. It is a strictly sales company, he pointed out, with one-third of its capital tied up in cash reserve, one-third in accounts receivable (96% not more than 30 days old) and one-third in inventory (which is never beyond 90 days old). By closely following this policy, he said, the company had been able to raise its sales from $900 in 1942 to nearly $10 million this year.

Mr. Schafer explained that his company failed dismally in an "invasion" of the Canadian market in 1948, mainly because it tried to use the same sales policy it had employed in the U. S. market.★

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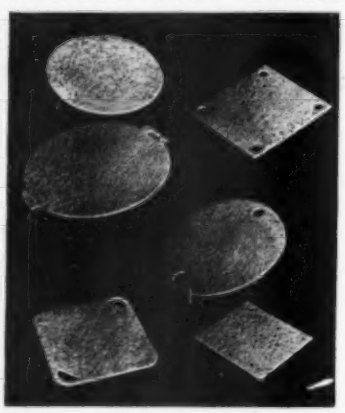

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Television Quiz Scandal

(*From page* 39)

He continued the attack in another address, this one to the Commonwealth Club in San Francisco on Nov. 5, calling on American businessmen to keep "hands off" television entertainment. "In the present television scandal," he declared, "those responsible are the manufacturers who sponsored the fraudulent programs, the producers of the show, the networks, the advertising agencies, and the contestants. . . . Of all the parties involved, I consider the dishonest businessmen the most guilty."

Others in public also called on the contestants and sponsors to surrender their profits to charity. In a sermon to the Park Avenue Christian Church in New York (*New York Times*, Nov. 9) the Rev. Dr. Hampton Adams called on those who profited by the scandals to give to education, the church, or charity, "an amount equal to that which they got by deception." Newspaper columnists put the affair in the same light as the Teapot Dome Scandal and the Black Sox Baseball Scandal.

By month's end, television sponsors, commercials, and the institution of television all came under attack from many quarters. Congressmen threatened corrective legislation, networks hired "czars," CBS dropped quiz programs altogether, and officials of the Federal Trade Commission suggested that they be given more power to police television. The advertising business, reeling under the brunt of the attack, made some feeble gestures to clean up certain phases of its activities. But the furor appears far from over.★

Editor's Mailbag

(*From page* 14)

as the exclusive eastern representative of our complete line of aerosol cover caps. His address is 120 Liberty Street, New York, and phone: BArclay 7-3374.

The November article would indicate that he is no longer representing us since having joined the McKernan Company and we certainly wish to clarify this. We will appreciate your correction of same.

A. C. Martin
WEST PENN MFG. & SUPPLY CORP.
Brackenridge, Pa.

Automotive Products

(*From page* 49)

adaptor transfer line to connect to the tire valve.

After the tire is repaired, it may require remounting at the service station or you may be doing it yourself. This will then call for the easy, no mess aerosol application of a tire mounting compound.

I'm sure none of us would care to undertake the job or expense involved in undercoating an entire auto with an aerosol undercoating spray, but there is one available to touch-up uncoated areas or areas where the undercoating has been chipped off.

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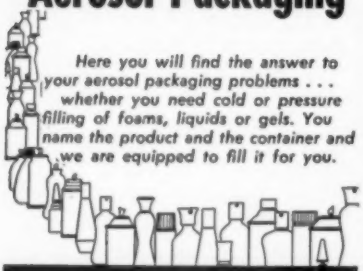

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hard-to-get-at areas. Molybdenum sulfide and colloidal graphite sprays also are on the market for use in depositing a thin film of graphite on thoroughly cleaned motor parts prior to reassembly. The product is most satisfactory for piston and crankshaft assembly. The applied film of graphite prevents scratching or scoring, while providing a lubrication base.

For the motorcycle enthusiast there is an aerosol chain belt lubricant. It can be used for the lubrication of the chain drive, timing chains, and also for industrial applications. For the tractor-trailer operator, there's a "fifth wheel" lubricant and base coat to ease the messy job of greasing the hitching plate on the tractor.

Push-button protection of battery terminals from corrosion is obtained from a battery terminal spray based on glyptal resin.

To silence squeaks and noises, silicone sprays are available in pressurized containers, along with ignition sealers to help assure quick starts and smooth operation in the dampest, wettest weather.

The "do-it-yourselfer" has paint primers, touch-up enamels, lacquers, and the new acrylic finishes available in catalogued car colors for new as well as old.

Diesel truck drivers can solve their winter starting problem with a pressurized engine starter fluid. The diesel trucker sprays a little ether into the air intake, energives the starter and "away she goes!"

Cleaning the car for the Sunday outing is less of a chore with such items as pressurized upholstery clearer, or a specialized leather cleaner and conditioner.

A motor degreaser and cleaner for maintaining the like-new appearance of the engine or removing some of the accumulated grime and grease can be sprayed on and the clean-up job accomplished with only a portion of the effort normally required.

Are you tired of daubing and rubbing wax on your car to give it a showroom shine? Try an easy-to-use aerosol auto wax, a newcomer in 1957 and gaining greater acceptance every day.

Going back to the cleaning process, we can't forget the car with the white sidewall tires. There's a white sidewall tire cleaner to do the job. If you tire of white sidewalls and hanker for the old "no-care" black, spray them with tire blackener. Every used car lot and service station should be able to use these.

A chrome protector spray will reduce the effects of stone chipping and will also delay the disappointment of finding your bright brand new bumpers showing signs of rust.

Earlier it was stated that automotive aerosol products are available from the wheels up. Actually it goes one step further to the personal clean-up with a pressurized waterless hand cleaner. Why not spray away the dirt and grime from your hands after you've worked on the car? Even road emergencies are a little easier to take if you carry one of these in the glove compartment.

Truckers might consider the propellent-powered signal horn as an emergency unit, It's loud enough to be heard for a quarter of a mile or more, and a one-lb. can provides enough energy for continuous operation for 15 minutes or so. Intermittent operation permits longer use.

Those products described are work savers, to make easier those sometimes unpleasant chores we would rather avoid.

With the market potential that exists, and the means of advertising and promotion available to you, it would appear that now would be the time to evaluate your products for aerosol application. Several automotive aerosol products were mentioned earlier. The automotive chemicals manufacturer or merchandiser all have products adaptable to aerosol application.★

Product Development

(*From Page* 44)

developing other ways of gaining the same objective! A reasonable royalty, bearing some relation to both the expenditure required in the development and the creativity or the novelty involved, may be the best policy.

8. Ease of Production

The technology of aerosol production is sufficiently well established now so that the production problems of most items can be assessed by one experienced in aerosol production. A company new to this industry, even though experienced in other phases of packaging, should seek the advice of an aerosol filler or a consultant. If a radically new product is being considered which could well contain several production "bugs," then a pilot operation is quite important.

9. Consumer Education Required

Where the product is standard, like the room deodorant, there is no problem, but if the product introduces a new and unfamiliar technique, the costs in demonstration, either direct, TV, or through other consumer media, have to be considered and the rating factor set accordingly.

10. Profit Margin

The previous factors mentioned as forming the basis for a product rating system have a common characteristic. They are to a major extent a property of the product itself. You can't do much about them at the start.

Profits are different. They are something you hope you can influence. After our long look at product selection, let us take a quick glimpse at the last two topics, pricing and marketing. Both influence the profit margin; and the rating system is not complete until the pricing structure has been set and the marketing costs estimated.

Pricing

This is the heart of the business. What is the marketer actually selling —the components, cans, valves, propellants and liquids? This is only a part of the picture. Along with factory costs, consideration must also be given to such factors as know-how, novelty, appearance, quality, marketing, financial backing and media support. Under any system of distribution, money has to be paid to get information from the customer concerning the product. We recognize that the new car, the corn flakes, the bottle of beer and the aerosol product contain in their price a fraction of the ticket for news, music,

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shows, education and information. The total package, visibly or not, consists of components, plus usefulness, plus information, plus services. Our price has to consider these elements as well as the competitive situation and our basic production costs. One caution, aerosols need not necessarily compete with non-aerosol products, since the superiority in terms of usefulness and time-saving may far out-weigh other considerations. Some aerosol products have failed commercially because they were priced too low. The producers felt they were competing with related low cost items, and did not include in the pricing, the cost required to tell the story and move the merchandise.

Marketing

Marketing and promotion of aerosols should best be left to the experts. Let's do that. It's up to the marketer's sales manager to get distribution and to his advertising agency to move the product off the shelves. He should have some good tight "guesstimates" of the costs involved and set his pricing accordingly.

It is now commonly agreed in the chemical industry that aerosol products *are* wonderful. They are easily classified in respect to their commercial development histories under the headings: peaches, apples (less glamorous) and lemons. If careful attention is given to the selection of products that offer a real advantage, have a high frequency of use, and are fairly priced (allowing an adequate margin for telling their story), then one can expect that the aerosol industry will continue to produce sound profits and few lemons.★

Ampruf Paints

(*From Page* 50)

aerosol paint lines. The standard can is a 16-ounce Continental or American Can container and the valve is made by Aerosol Research Co., Forest Park, Ill. "Freon" is the propellant. Ampruf also sells bulk paint to aerosol packers who fill for private labels.

Heading research and development work for the company is Peter Bosco, formerly head of the research department at the U. S. Testing Co., in New Jersey. Michael Gildon is the chief chemist.

As to the immediate future for expansion of the aerosol paint market, Mr. Senser believes that if manufacturers can keep the price down below one dollar then high volume will permit growth and prosperity. Merchandising an impulse item like the specialty aerosol paints and other related aerosol products has appeal at the "under a dollar" figure, the company maintains.★

Pharmaceutical Co.

(*From Page* 54)

Dr. Rait as president, Dr. Klendshoj as board chairman, and Gustav Lucie as secretary-treasurer.

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PanPak is currently engaged in research in new concepts of pressure-packaging drug, food and chemical products. It operates four aerosol lines, including a high-speed rotary line.

PanPak will continue operations in its Attica, N. Y. plant. Strong Cobb Arner laboratories and manufacturing facilities are located in Cleveland, Buffalo, Murray Hill (N. J.), and Fort Erie and Montreal, Canada.★

•

Firmenich Buys Ciba Plant

Firmenich, Inc., New York aromatic specialty firm, recently purchased a 65-million square-foot manufacturing plant at Kimberton, Pa. The plant was formerly one of the major manufacturing centers of Ciba.

European Promotion

(*From Page* 78)

on the Continent. Equipment seen in England included machinery manufactured by Aeratom of Switzerland and J. G., Alpha-Cotton, and Mojonnier in the United States.

Many new designs and shapes in aluminum containers were seen in Sweden, England, and France, but these were made principally in Italy and France. Many novel shapes, not yet seen in the United States, have been marketed for some time in Europe. Considerable use of uncoated glass in unique forms and intricate designs, mainly in perfume and cosmetic packages, was noted. Uncoated glass containers seem to be accepted readily by the customer in Europe. In one aerosol plant in France, *each* individual glass bottle is examined by an inspector for signs of stress and strain, a procedure possible only because of low labor costs and the profitable high-priced perfume contained therein.

In Europe many aerosol fillers still make their own containers and valves, in contrast to the situation in the United States. This practice was initiated because it was found to be impractical and too expensive to import the items. Unique among new aerosol packages was a perfume bottle seen at the House of Marcel Franck in Paris. This container had a separate small storage cartridge for propellant so that any perfume may be dispensed. The company is celebrating its 75th anniversary in the atomizer business this year, and the aerosol line is expected to become an increasingly important part of its activities.

Par is presently concluding agreements with European fillers to have American aerosol products (packed by Par) shipped to Europe for marketing through European packers. This arrangement is expected to develop into a situation wherein Par will instruct and license European fillers to manufacture Par products in their own plants. The arrangement could well work in reverse, as European fillers have many excellent products in the development stage that might be interesting to the American consumer.★

The Stalfort Story

(*From Page* 38)

etc. Still another lists all of the above factors plus odor control, clarity of product, spray characteristics, concentrate temperature, and propellant temperature at given stages of production. These reports provide a valuable cross reference to keep a running check on container malfunctions, product spoilage, and other factors that might affect consumer acceptance.

As has been hinted previously, the physical plant of Stalfort Pressure-Pak is ideal for its aerosol purpose. It contains ample room for filling and storing operations, warehousing, a large well-equipped laboratory, and a well-stocked tool room and spare parts supply. Although a railroad spur passes nearby, Stalfort has found it more practical to employ trucks to transport components, raw materials, and finished products. One distinctive feature of the building is an installation of two huge 50,000-pound capacity storage tanks, which are used mostly for solvents and other raw materials. Depending on current demand, propellant is brought in either by tank truck or in 1000-gallon cylinders. These are simply hooked into the one-stage filling unit (in the proper proportion), so that propellant tank handling is kept to a minimum.

Stalfort's laboratory is large, airy, and equipped with scores of devices to formulate and measure various characteristics of aerosol products. The quality control personnel operate from the laboratory, as do the chemists and technicians charged with helping customers formulate their conventional products into aerosol versions. One special section is devoted to shelf-life testing, with both accelerated and normal tests being run all the time. Stalfort chemists have a system whereby a container from each lot filled is held for a year of normal shelf life.

What about the future of this company's aerosol activities? According to Charles E. Beach, company vice-president and general manager, Stalfort will try for an increased share of what should be a booming market in aerosol pharmaceuticals and foods. Plans are underway to add a full-time food technologist to the staff, which will entail the addition of food research instruments to the laboratory.

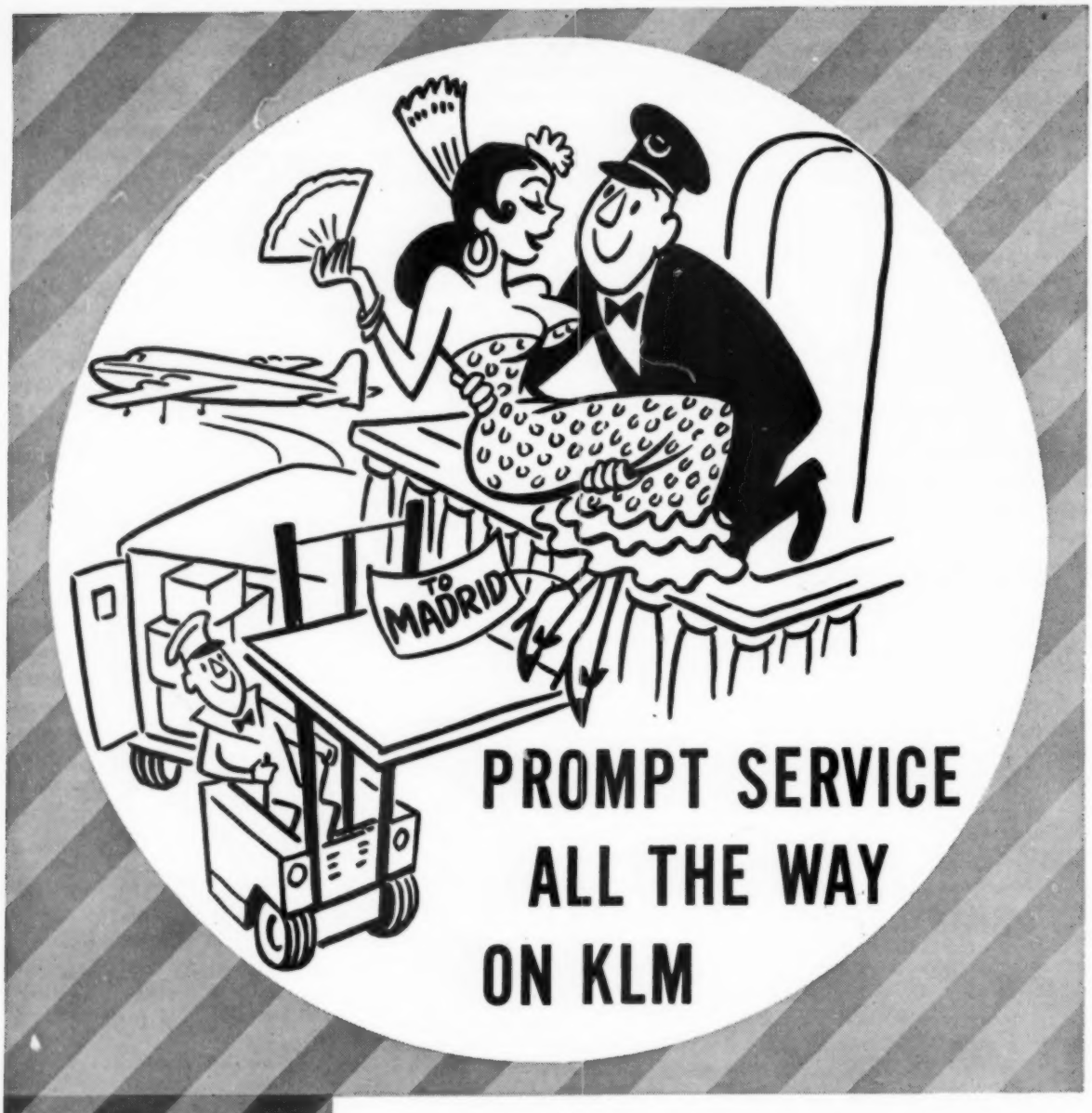
So long as the company can display such enterprise in keeping abreast of new aerosol developments, and can keep its plant capacity and equipment at its present peak, there seems little doubt in the minds of its management that it will be able to follow each rise in aerosol production and technology.★

•

"Polybactrin" in New Package

"Polybactrin," aerosol pharmaceutical spray powder of Calmic, Ltd., London, has been introduced in a new impact-extruded aluminum container equipped with a Precision powder valve. Both container and valve are being supplied by the Metal Box Co., Ltd., London.

The product is a formulation of neomycin, polymixin B, and zinc bacti racin and was formerly packaged in a plastic-coated glass bottle with a Vapsol valve. New package contains total powder content of only 1.5 grams. It includes an injection-molded high-density polyethylene applicator fitted with a chromium-plated nozzle which can be sterilized after each use.



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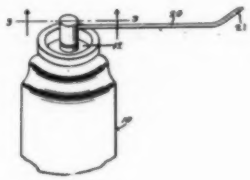
New Aerosol Patents

Listed below is a brief review of recent patents pertinent to the aerosol and related industries.

Complete copies of these patents may be obtained by writing to the Commissioner of Patents, U. S. Patent Office, Washington 25, D. C., and remitting 25 cents for each copy desired.

2,908,446. SPRAY TUBE. Issued Oct 13 to Arthur F. Strouse, Norristown, Pa., assignor, by mesne assignments, to Strouse, Inc., Norristown, Pa.



A dispenser comprising a pressurized container, a combined dispensing valve control and hollow discharge stem extending into said container, a valve operating cap mounted on said container and said discharge stem, a spray stem for said operating cap comprising an elongated tubular body portion, a chamfered inner end formed on one end of said body portion, and an angularly offset tubular end portion formed on the other end of said body portion, said cap having a vertically extending central bore projecting inwardly thereof from the lower end thereof and having an ejection orifice extending through a side wall thereof in communication with said bore with said stem extending through said ejection orifice and the terminal end of said chamfered end portion engaging the side wall of said bore at a point diametrically opposed to said orifice.

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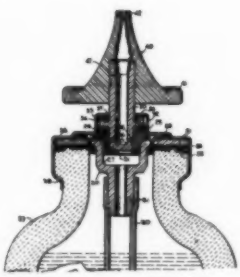
2,908,447. VALVE MEANS FOR DISPENSING CONTAINERS. Issued Oct. 13 to Frank Venus, Jr., Naugatuck, Conn., assignor to The Risdon Manufacturing Co., Naugatuck.



Dispensing valve means comprising a resilient annular valve closing member, a tubular valve stem having an axial passage closed at its inner end, said closed end being resiliently gripped completely around its periphery by said annular member in the normal position of said stem, a rigid valve housing enclosing said member and the inner end of said stem and supporting them to permit manual tilting of said stem relative to said housing, said housing including means for confining said valve closing member laterally to cause it to grip the inner end of said stem, a stiff flange encircling said stem intermediate the ends thereof, said flange being disposed between and engaging said valve housing and resilient member, respectively, and having a peripheral portion which bears against said housing when said stem is manually tilted to provide a positive pivot point for tilting movement of said stem, and an inlet passage through the wall of said stem communicating with the interior thereof at a location adjacent its closed end, said passage being sealed off by said member in the normal position of said valve stem but opened upon tilting of the latter, and an actuator for said valve means forming a spray nozzle at the outer end of said stem, said actuator comprising a body member having a socket closed at one end within which said tubular valve stem is received in peripheral sealing engagement with the wall thereof, said body member having an aperture formed through a wall thereof and communicating with the interior of said socket to provide a discharge orifice, said body member having a peg extending axially from the closed end of said socket into closely spaced relation with the passage in said valve stem, said peg having a cross-sectional area different from that of said stem passage whereby said peg and valve stem define between them a restricted flow passage leading from the interior of said valve stem to said discharge orifice.

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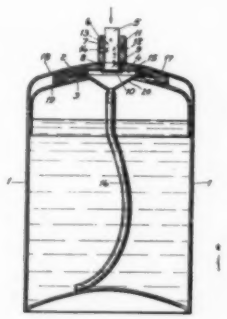
2,908,297. LIQUID SPRAYERS. Issued Oct. 13 to Alvar Carlsson, Stockholm, Sweden.



A refillable container adapted to be filled with a liquid fluid under gas pressure, said container having an opening in one wall only thereof through which the fluid is introduced into the container, the gas pressure on the fluid being thereafter generated, and a combined, releasable closure and valve assembly for closing said wall opening subsequent to filling the container and thereafter dispensing the fluid, said assembly including a closure member, a dispensing valve mounted centrally on said closure member, said closure member including means forming a chamber below and communicating with the path of liquid flow through said valve, a tube extending from said chamber to the bottom of said container, said closure member also including a peripheral flange, and a sealing ring intermediate said flange and the marginal portion of said wall opening, said sealing ring engaging the upper side of said flange at its underside and engaging the underside of the marginal portion of said wall opening at its upperside, said flange being sealed with respect to said wall opening only by being acted upon by the gas pressure created in the filled container to establish an outward force on said flange in the direction of said sealing ring and said marginal portion of said wall opening.

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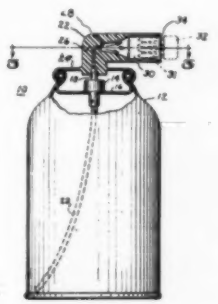
2,907,358. TOOTH POWDER CONTAINERS. Issued Oct. 6 to John C. Armstrong, Salem, Mass.



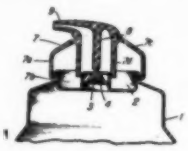
A dispensing tooth powder container comprising, in combination, a pressurized container body and a dispensing head carried by said container body, said dispensing head having a discharge chamber the outer portion of which is substantially rectangularly shaped to receive and enclose reasonably snugly the bristles of a tooth brush in spaced relation to the inner portion of said chamber, said container being provided with a passage from the interior of the container body to the inner portion of said chamber through an orifice, and valve means actuated by said dispensing head for spraying tooth powder from said container body through said orifice and applying said tooth powder simultaneously to the entire bristle area of said brush.

•

2,908,479. AEROSOL VALVE. Issued Oct. 13 to Perry Cornell Goodspeed, Jr., Norwich, N.Y., assignor to Cornell Valve Corp., Norwich, N.Y.

A valve comprising a cylindrical seat element of stamped sheet metal including an end wall and a side wall integral with the end wall at its periphery, said end wall having a circular central opening constitut-

ing an outlet, the portion of the end wall extending marginally about the opening and within the side wall constituting a valve seat, said cylindrical seat element being open at the end of the side wall remote from the end wall to provide an inlet, a valve member of compressible resilient material having a flat base portion and a convex apex portion narrower than and in opposed relation to said base portion and larger in diameter than the outlet, said valve member tapering from the base portion to the apex portion, said valve member having all its dimensions parallel to the base surface substantially smaller than the internal dimensions of the side wall, said valve member being located within the side wall and cooperating therewith to define an annular passage, a support element for said valve member, said support element being relatively rigid as compared to said valve member and having at least portions of its peripheral surface cylindrical and engaging the inside surface of the side wall to center the support element with respect to the wall, said support element having a flat surface transverse to said cylindrical surface and abutting the flat base portion of the valve member, said support element having passages therein providing fluid communication between said inlet and said annular passage,



said valve member and said support element being insertable through the inlet into the cylindrical seat element, means integral with one of said elements to retain the support element within the cylindrical seat element at a position where the support element and the end wall cooperate to compress the valve member, said apex portion of the valve member and the end wall cooperating, in the event of misalignment of the valve member apex portion and the outlet, to apply to the valve member a force tending to center the apex portion in the outlet, the abutting flat surfaces of the valve member and the support element accommodating lateral movement of the valve member by said force necessary to accomplish said centering, said support element and end wall then cooperating to hold the apex portion of the valve member in forced sealing engagement with the seat, a valve operating pin, means supporting the pin at the opposite side of the end wall from the valve member in a normal position where it is adjacent the valve member but ineffective to compress the valve member and in alignment with the outlet, said pin being smaller in diameter than the outlet, said pin supporting means being movable to shift the pin from its normal position into engagement with the apex portion of the valve member to compress the valve further and move the apex portion out of engagement with the seat, thereby opening the valve to provide fluid communication between the annular passage and the outlet.

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Trade Mark Applications

Applications for registration of the following trademarks were published in recent issues of the *Official Gazette* of the U. S. Patent Office. In not all cases are there strictly aerosol trademarks, however, many of the products listed below come within the category of those for which a possible future use in aerosols is foreseen.

SPARKLE, for medicated foot powder for the relief of burning, itching, and perspiring feet, and athlete's foot. Filed Nov. 20, 1958 by John M. Staley, d.b.a. Tred-Eze Laboratories, Los Angeles, claiming first use Jan. 7 of previous year.

PICNIC PEACE, for insecticides for outdoor use. Filed June 19, 1958 by Earl Grissmer Co., Indianapolis, with first use given as May 21 of same year.

VAPOMIST, for medicated inhaler type product for the symptomatic relief of colds and other nasal sinus and bronchial conditions. Filed April 14 by Vick Chemical Co., New York, with first use claimed for 25th of previous month.

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TENDER GLANCES, ENCHANTED MOMENT, DISTINGUE MIST, and SUYIN, all for spray mist colognes. Filed Oct. 13, 1958 by Jeanne Nadal, Inc., d.b.a. Jeanne Nadal, Chicago, claiming first use on all four for April 17, 1958.

CHIVALRY, for cologne, toilet water, and deodorant. Filed Nov. 19, 1958 by Mary Chess, Inc., New York, with first use reported as July 1, 1958.

NYAMITE, for insecticides. Filed Sept. 30, 1958 by Food Machinery & Chemical Corp., New York, with first use reported as June 10 of same year.

STOP-RUST, for chemical rustproofing preparation. Filed Aug. 4, 1958 by The Stop-Rust Co., Chattanooga, claiming first use Oct. 1933.

FORMULA S, for shaving cream. Filed Jan. 28 by Bronson Products Co., Chicago, claiming first use Feb. 23, 1953.

PERDUE, for spray deodorant for sanitary napkins. Filed Aug. 25, 1958 by Ayer Chemicals, Inc., Lawrence, Mass., claiming first use January of previous year.

SILI-CURL, for hair straightener. Filed April 2 by Adoph's Beauty Products Co., Philadelphia, reporting first use Sept. 4 of previous year.

SUMMER FROST, for cologne, perfume, and dusting powder. Filed April 3 by Prince Matchabelli, Inc., New York, with first use reported July 2, 1947.

REZIFILM, for medicinal spray dressing. Filed Jan. 26 by Olin Mathieson Chemical Corp., New York, claiming first use Nov. 18 of year before.

ANTI-FOG LENS CLEANER, for cleaning solutions with anti-fogging properties for ophthalmic and optical lenses and other optical devices. Filed P. R. 2-25-58 by Eugene Lawrence Gould, d.b.a. Clearview Laboratories, Kittanning, Pa., reporting first use April 30, 1957.

CLASSIFIED ADVERTISING

Address all classified replies to Box Number c/o *Aerosol Age*, PO Box 31, Caldwell, N. J. Rates for "Help Wanted" advertisements are 20¢ per word; minimum charge $3.00. Rate for individuals seeking employment is 5¢ per word, $1.00 minimum. Advertisements of new machinery, products and services accepted at the rate of $10.00 per column inch. Minimum space, one inch. Copy closing date, 10th of preceding month. *Checks must accompany all orders.*

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Chiris Head Visits Europe

F. E. Shoninger, managing director of Antoine Chiris, Ltd., and president of Antoine Chiris Corp. in New York, returned recently from a European trip. He was accompanied by John G. Meredith, director of sales of the British Chiris Co.

One of the functions of Mr. Meredith's visit was to examine the possibility of extending the sale of essential oils in the United Kingdom to include U. S.-produced spearmint, pepperment, cedarwood, and other essential oils.

•

PI Forums Announced

The 22nd Annual National Packaging Forum of the Packaging Institute will be held Oct. 31, Nov. 1 and 2, 1960 at the Statler-Hilton Hotel, New York, according to announcement by Roy W. Abling, Merck Sharp & Dohme, Div. of Merck & Co., chairman of the Institute's Forum Plans Committee.

Highlights of the forum will be 12 seminars covering packaging subjects of great current interest. Presentation of Packaging Institute's annual award is a special opening day feature.

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OVER THE TRANSOM

IN the light of the many warnings issued by the Federal Trade Commission, the House Committee investigating television quiz scandals, and the Federal Communications Commission, aerosol marketers would do well to review their commercials for gross inaccuracies of fact or "hinted-at" benefits for their products which they don't actually offer. As will be seen by stories on pages 39 and 94 of this issue, some of the leading aerosol marketers have already come under criticism for either excessive claims for their products, or actually having a hand in the fixed television quizzes.

One product category which is probably fraught with the most temptation to "cheat just a little" on advertising claims is the cosmetic field, especially for such highly-competitive products as hair sprays. Each marketer seems to be trying to outdo the other in number of claims for his hair spray product, even though many have very similar formulations. These firms *could* be pulled up short on this!

In case you may have missed it, one aerosol product scoring especially big sales gains this year has been shoe polish. The entry of Griffin this month, coupled with the introduction of a whole score of products on labels of smaller companies, could give this product type one of the largest percentage gains of any aerosol product this year.

* * *

Mike Lemmermeyer, of Aromatic Products, up to now an amateur painter of some note, last month entered the professional ranks with a special showing at The Lynn Kottler Galleries in New York. We were much impressed.

* * *

A take-over bid has reportedly been made for John Dale Ltd., English aluminum aerosol producer. No details about the bidder as yet, but Metal Closures Ltd. announced last month that the two companies have been talking merger.

"Now *there's* what I call an impulse sale!"

Mrs. Fred Lodes, attractive wife of the president of Lodes Aerosol Consultants, Inc., last month won a mink coat and some cash in two appearances on the NBC television program "Concentration." She tells us there wasn't the slightest hint of a "fix" and she had a grand time.

* * *

The CSMA's Aerosol Division Executive Board has thrown open its future meetings to the general membership attendance. Good idea, we'd say.

* * *

Al Marks of Wheaton Plastics Co. has come up with an aerosol idea that reportedly has generated some excitement in the food field. The idea is a pressurized certified food coloring packaged in a glass container (of course) which could be used to color white cake icings, Easter eggs, cup cakes, cookies, and a host of other foods. The color was developed by William Stange, Chicago, and a number of major food marketers are very much interested in the idea. Propellant is a mixture of 12 and 114 and one idea is to market the product in a "kit" of from four or six colors.

* * *

Christian Baude, 14-year old son of John Paul Baude, product manager of Fleuroma, Inc., won third prize in the American Institute's 21st School Science Fair with a three-panel aerosol exhibit. One panel showed a color chart of all the propellants, the center consisted of assorted containers, valves, and actuators, and the third showed the past, present and future of aerosols (plus an assortment of products on the market today).

* * *

Among the victors in the Nov. 3 election was Dan Lockhart (of Wellston Aerosol Manufacturing Co., Wellston, Ohio) who won a hotly contested battle for a seat on the Weliston board of education.

* * *

RECENTLY MARRIED: George P. Macura, development engineer for Valve Corporation of America, Bridgeport, Conn.. Mr. Macura's wife is the former Arlene Ann Knudson of Bridgeport. Wedding took place Oct. 31 in St. John's the Baptist Carpatho-Russian Orthodox Catholic Church, Bridgeport. After a two-week motor trip, the Macuras will reside at 390 Kent Ave., Bridgeport.